

4.0 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

4.1 LIST OF STUDIES

This section describes the probable impacts of the project build alternatives and the no build alternative. The environmental impact analysis and proposed mitigation measures are based on preliminary project design and current information and circumstances. Technical reports were prepared as part of the environmental studies for the proposed action. These reports analyze existing conditions and identify potential impacts for the Fredricks (Variation 1 & 2), Del Rio and Del Rio North Alternatives. This section summarizes the findings of these reports and incorporates information that may be more current than the information contained in the final technical studies. The Draft EIS and technical studies, except for the Historic Property Survey Report, which contains sensitive archaeological information, will be available for review at these locations:

Caltrans District Office, 2829 Juan Street, San Diego, California.
Brawley Public Library, 400 Main Street, Brawley, California
Imperial Valley College Library, 380 East Aten Road, Imperial, California
Imperial County Public Works Department, 155 South 11th Street, El Centro, CA

The following technical reports were prepared for this DEIR/DEIS.

Air Quality Study
Biological Resource Analysis
Draft Relocation Impact Report
Floodplain Assessment (see [Appendix L](#))
Hydraulic Study
Hazardous Waste Initial Site Assessment
Historic Property Survey Report
 -Archaeological Survey Report
 -Historic Architectural Survey Report
Major Investment Study
Noise Impact Study
Preliminary Geotechnical Report
Visual Impact Assessment

Final design of the selected project alternative may cause proposed mitigation measures to be revised.

4.2 LAND USE/PLANNING IMPACTS

4.2.1 Land Use Impacts

The Fredricks Alternative would cross the northernmost industrial area within the city of Brawley. By utilizing primarily vacant industrial land, the Fredricks Alternative minimizes the

direct impact of industrial improvements to a full acquisition of one business and one nonprofit youth organization (Future Farmers of America), and anticipated partial acquisitions of several other businesses. The Del Rio Alternative impacts a feedlot as a partial acquisition and an equestrian center/residence as a full acquisition. It also impacts a portion of the Del Rio Country Club that is used as an agricultural field. The Del Rio North Alternative also impacts the feedlot as a partial acquisition and one farm residence as a full acquisition. The primary land use impact of all the alternatives is to agricultural land. Each of the project alternatives would also impact the canals, drains and access roads associated with agricultural operations.

Table 4-1 shows the hectare/acreage impact estimates by alternative and type of land use. The hectare/acreage estimates are rounded and the figures for direct right-of-way impacts are separated from the estimates for indirect impacts. The indirect impacts would be associated with new farm access roads, required changes in the irrigation system, and remnants impractical for farm use. Caltrans would not acquire most of the indirectly impacted acreage because it would be used by other entities for agricultural support. Specific effects on agriculture are addressed in [Section 4.4](#), Farmland and Agriculture.

TABLE 4- 1**Land Use Impacts by Hectare/Acreage**

	Fredricks	Fredricks w/ Interchange	Del Rio	Del Rio North
TOTAL DIRECT				
hectares (acres)	171 (422)	190 (469)	180 (444)	190 (469)
Farmland	157 (386)	176 (434)	174 (429)	186 (459)
Commercial and Residential	2 (4)	2 (4)	1 (2)	0.4 (1)
Industrial	6 (16)	5 (14)	3 (7)	2 (6)
Undeveloped				
by New River	6 (15)	6 (15)	2 (5)	1 (2)
<u>Indirect*</u> hectares (acres)	32 (80)	39 (98)	39 (98)	38 (94)

*All indirect land use impacts to farmland are estimates that are rounded to the next highest whole number. About half of the farmland indirectly impacted would remain in private ownership. Some of this land would be used for reconstruction of farm access roads and irrigation facilities.

Given the relatively small extent of the impact areas, the project would not have a substantial impact on existing land use with the exception of farmland uses and potential relocations of several unique land uses on the Fredricks Alternative. These will be discussed in greater detail in sections 4.4, 4.5.1, 4.5.2 and 4.6.

The Fredricks Alternative, Del Rio Alternative and Del Rio North Alternative would impact approximately 31 ha (77 acres), 26 ha (65 acres), and 26 ha (65 acres) of the proposed Luckey Ranch development, respectively.

Local Plan Consistency

A corridor for the 78/111 Brawley Bypass Expressway Project is shown in the Imperial County General Plan Circulation Element. Further, the County participated in the approval of the 1997 Imperial County Transportation Plan Highway Element which identifies SR-78/111 as a Near Term Project. Continued coordination with the County has indicated that the No Build Alternative is not a County preferred option. Also, the build alternatives would promote the County General Plan objective of improving safety and efficiency in transportation by removing commercial truck traffic from local roads and overburdened highways. All alternatives except for the No Build Alternative would be consistent with the County planning efforts for circulation. Therefore, the proposed transportation project is intended to meet the existing and/or project traffic demand based upon the local land use plans.

There are inherent conflicts between the County General Plan Agricultural Element and the build alternatives. All of the build alternatives would sever agricultural fields, remove high quality farmland, and create crossing difficulties for agricultural vehicles and equipment. Agricultural impacts, and their significance, would be discussed in greater detail in [Section 4.4](#). Another conflict may arise due to a County General Plan stipulation which states that agriculturally zoned parcels must be at least 16 hectares (40 acres) in size. This may limit a property owner's ability to sell a remainder agricultural parcel that has been split by the expressway to another agricultural property owner.

Potential conflicts with the Circulation Element Goals and Objectives include the noise impacts associated with the residences on all of the build alternatives. Caltrans will consider noise abatement as part of the project development process where it is reasonable and feasible. However, in general, noise abatement on this project did not meet the criteria for reasonable and feasible and is not proposed. A more detailed reasonable and feasible analysis of noise abatement for receptor sites will be included in the FEIS/FEIR.

The proposed project is not completely consistent with the city of Brawley General Plan for any of the proposed build alternatives. However, the city of Brawley reviewed the May 1997 Alternatives Analysis Report and concurred with the continued study of the Del Rio, Del Rio North and Fredricks Alternatives. The Del Rio Alternative is currently shown on the Brawley General Plan and neither the Del Rio North nor the Fredricks Alternatives are shown. However, on July 18, 2000 the city of Brawley adopted the Fredricks Alternative Land Use Plan for the Luckey Ranch Specific Plan which, in effect, makes the Del Rio and Del Rio North Alternatives inconsistent with the Brawley General Plan within the area of the Specific Plan. Further, Shank

Road is shown as a major arterial in the Brawley General Plan. The Fredricks Alternative may adversely affect the operation of Shank Road as a major arterial because changes in access, cul-de-sacs and a series of frontage roads are proposed for each of the design variations. The potential impact varies in severity with each variation. Please see [Figure 2-5](#) and [Figure 2-6](#) and [Section 4.5.1](#) for more detail.

The Del Rio and Del Rio North Alternatives are compatible with the 1998 Final Draft Brawley Municipal Airport Master Plan. The Fredricks Alternative impacts the proposed future Runway Protection Zone (RPZ) as shown on [Figure 3-8](#). Caltrans was offered the opportunity to comment on the 1998 Final Draft Master Plan Update for the Brawley Municipal Airport and recommended that the RPZ and airport expansion be modified to accommodate the Fredricks Alternative. Caltrans will continue to coordinate with the Imperial County Airport Land Use Commission (ALUC).

Each of the alternatives provides over 10 m (33 ft) of vertical clearance between the expressway and the proposed future 1:20 (20:1) approach surface. This exceeds the current minimum requirement of 5.1 m (17 ft). However, each alternative would encroach upon the 1:100 (100:1) imaginary surface defined in Paragraph 77.13 of the Federal Aviation Regulations, Part 77. Therefore, a "Notice of Proposed Construction or Alteration" (FAA Form 7460-1) was submitted to the Federal Aviation Administration (FAA) on August 15, 2000. The FAA responded to FAA Form 7460-1 with a "Determination Of No Hazard To Air Navigation" on February 9, 2001.

Mitigation Measures

Caltrans will continue to coordinate with city and county officials throughout the life of the project to address local concerns. It is anticipated that the city of Brawley General Plan will be updated to include the preferred build alternative after a preferred alternative has been identified. The inconsistencies with local plans will be addressed during coordination with the city and county.

4.3 GROWTH IMPACTS

In general, a highway project may affect the overall growth in the area studied, it may affect the location of growth within the area, and it may affect the rate of growth. A highway project may remove an obstacle to growth by providing new access, more direct access or an improved level of service on an existing access. Highway projects may accommodate planned growth or encourage unplanned development. Both planned and unplanned growth would have beneficial and adverse impacts. However, planned growth would be developed in conjunction with supporting public services reducing adverse impacts to traffic, noise, schools, public utilities, and emergency services in existing communities.

Many factors other than the project's construction would affect the amount, location and rate of growth in the project area including:

- * Market demand for new development

- * The availability of other access, existing roads or planned roads
- * Developable land
- * National and regional economic trends
- * The availability of other infrastructure
- * Governmental policies
- * Climate

All of the build alternatives would have a similar relationship to secondary growth impacts on a regional basis. In general, the build alternatives are likely to cause secondary growth impacts by accommodating planned and approved development. These secondary impacts would be reasonably foreseeable under the National Environmental Policy Act (NEPA) but uncertain as to their timing and extent because of the variable factors of market demand and other growth parameters.

Further, should the planned development be built out, pressure to develop nearby land currently designated for agriculture would be strong. This could result in unplanned development that would convert Prime or Statewide Important Farmland into urban uses. Currently, the County General Plan protects agricultural land, particularly Prime and Statewide Important Farmland, but allows conversion for exceptional needs. Further, the County General Plan serves as a guide but allows for future amendments. The city of Brawley General Plan designates the northwestern portion of the project corridor as agricultural and indicates urban development east of existing SR-111. The city of Brawley General also allows for future amendments. Because all the build alternatives create a new state highway in the northern two thirds of the project corridor, they would provide greater access and stronger pressure to develop urban or highway-oriented uses. Currently, active development planning near the expressway alternatives is located along the eastern edge of the city of Brawley in an area that is primarily Statewide Important Farmland. Six non-highway development projects listed on [Table 4-13](#) have been approved within the vicinity of the proposed project. These projects involve the conversion of approximately 324 hectares (800 acres) of farmland. The conversion of these farmlands would also impact biological resources, including burrowing owls and mountain plover habitat. There are large sections of Prime Farmland located north of the city that could be affected by unplanned development due to the access provided by the expressway.

All three of the alternatives cross through this Prime Farmland but only the Fredricks Alternative remains almost entirely within the city of Brawley Sphere of Influence. Although Imperial County could approve urban development within the unincorporated area, urban development is more likely to occur within a city's Sphere of Influence. Therefore, the Fredricks Alternative is more likely to be growth inducing within the area of Prime Farmland than the Del Rio or Del Rio North Alternatives. The Del Rio and Del Rio North Alternatives, however, would allow for a greater area of urban development in the northeastern section of the city's Sphere of Influence as shown on [Figure 3-7](#) and [Figure 3-11](#). This area is primarily Statewide Important Farmland. The county's population has grown at a rapid rate (30% between 1990-1998), but has low overall numbers when compared to other areas within the State of California. The primary growth in the city of Brawley has been residential development in the southwestern portion of the city. The city is actively seeking new commercial and industrial uses to provide jobs in the community but conversion to these uses has been slow. Due to the slow adsorption of

commercial and industrial land in Imperial County, adverse growth impacts to public services, natural and cultural resources, noise, air, and water quality are not expected to be significant. Further, there are alternative local routes available that provide access. However, given the strong potential for the growing international market and the sensitivity and importance of the agricultural impacts on a national scale, the build alternatives may cause project related growth impacts to agricultural land that are relatively high in context and intensity.

Mitigation Measures

Because the timing and scale of secondary growth impacts are subject to the control of the local jurisdictions and economic factors beyond the direct control of Caltrans and FHWA, this project does not bear mitigation responsibility for these secondary impacts. Furthermore, FHWA has not agreed to this type of mitigation as being eligible for federal aid funding. Future developments will be directly responsible for addressing and mitigating adverse growth impacts to public services, agriculture, natural and cultural resources, noise, air and water quality. This ensures that indirect growth impacts caused by the project will be mitigated at the appropriate level when the direct impact occurs. Many of the parameters affecting indirect growth impacts are beyond the control of this project's lead agencies.

4.4 AGRICULTURAL/FARMLAND IMPACTS

As noted under Land Use, all of the build alternatives would impact a large agricultural area. Farmland impacts for all build alternatives would be substantial. In addition to the direct and indirect acreage impacts, all the build alternatives would bisect agricultural fields. Bisecting the fields leads to a host of impacts to IID and privately owned irrigation facilities and access roads. The gravity-flow canal and drain system for each field must be changed and, in the case of bisected fields, the delivery system and road access may need to be duplicated. Further, farmers would have to work around the limited access expressway making it difficult to move equipment and workers. Once-viable farming units may no longer be economically feasible requiring sale to different operators. The IID system operations would also be affected since the IID workers follow the water down the canals opening the proper gates at given times during deliveries. Some remainder parcels would be small or irregularly shaped and would not be economically viable to farm.

Fredricks Alternative (Variation 1) bisects 23 fields (4 major and 3 minor bisections) and affects 157 ha (386 acres) of farmland. The field sizes vary and a minor bisection is estimated at less than 25% of the field. Fredricks Alternative (Variation 1) impacts 66 ha (162 acres) of Prime Farmland and 91 ha (224 acres) of Statewide Important Farmland. Fredricks Alternative (Variation 2) impacts 24 fields (6 major and 2 minor bisections) and affects 176 ha (434 acres) of farmland. Fredricks Alternative (Variation 2) impacts 66 ha (162 acres) of Prime Farmland and 110 ha (272 acres) of Statewide Important Farmland. However, both impact agricultural support businesses within the city of Brawley which provide essential services to the surrounding agricultural economy. These impacts are discussed in greater detail in sections 4.5.1, 4.5.2, and 4.6. The possible loss or relocation of these businesses may be of greater importance to agricultural production than the direct loss of farmland.

The Del Rio North Alternative impacts 26 fields of varying sizes and bisects the next lowest number of fields (5 major and 4 minor bisections) and impacts 57 ha (140 acres) of Prime Farmland and 129 ha (319 acres) of Statewide Important Farmland. The Del Rio Alternative removes 57 ha (140 acres) of Prime Farmland and 117 ha (289 acres) of Statewide Important Farmland. The Del Rio Alternative also bisects the greatest number of fields with 7 major bisections and 3 minor bisections.

The proposed project must comply with the 1984 Farmland Protection and Policy Act (FPPA). Caltrans began early coordination in July 1997 with a field visit to the Imperial County Natural Resource Conservation Service Office. A completed form AD 1006 is attached in [Appendix D](#). All of the build alternatives exceed the site assessment criteria threshold of 160 points. Since the build alternatives all exceed the criteria threshold, minimization and mitigation measures must be considered. The FPPA requires that FHWA/Caltrans consider using existing facilities or using land that is not farmland, or analyzing alternative sites, locations, and designs that would serve the proposed purpose but convert either fewer acres of farmland or other farmland that has a relative lower value.

Currently, SR-78 and SR-111 direct traffic through the city of Brawley to the east and west, and north and south, respectively. Caltrans is upgrading SR-111 to a four-lane expressway south of the city of Brawley, and that project is being designed at the present time. Because the Imperial Valley area is either in urban use or farmed, alternate routes would impact either other farmland or established communities. As discussed in Chapter 1, there are conflicts between urban uses and traffic, agricultural traffic, and the expected through truck traffic generated by the international trade. Because the area nearby is either in urban use or farmed, alternate routes would either impact other farmland or established communities.

Questions were raised at the Public Scoping meetings about Air Quality impacts on agriculture. It is not anticipated that there would be noticeable impacts to crops adjacent to the expressway. Particulate impacts on limited access facilities are very low to adjacent properties. The land adjacent to the intersections would show a higher level of uncontrolled diesel soot and dust. It is, however, unlikely to be noticed considering the dusty nature of the farm operations and the inherent dust in Imperial County. The current secondary air quality standards were designed, in part, to protect against damage to crops.

Mitigation Measures

A strategy to preserve farmland in the Imperial Valley will be pursued. Prime and statewide significant farmland will be avoided to the extent possible and design refinement, as noted above, minimized its conversion to the extent possible. To offset the loss of farmland and to protect other farmland from development and keep it available for farming. Caltrans will purchase farmland conservation easements from willing landowners in the area. The establishment of conservation easements on prime and statewide significant agricultural farmland at this time is the result of a growing awareness that the farmland resource is in need of protection.

An objective of the program is to establish conservation easements on viable agricultural parcels at an acreage ratio of 1:1, or equivalent, for the farmland lost. The specific ratio will be determined by Caltrans or a private non-profit organization which is contracted to acquire, manage and enforce agricultural conservation easements. The conservation easement(s) or funding will be developed in coordination with the County of Imperial, the California Department of Conservation and the federal agency responsible for farmland protection, the Natural Resource Conservation Service. The implementation of such a plan for agricultural land preservation in one of the nation's prime agricultural regions would reduce the farmland impact of this project. At this time, FHWA has not agreed to this mitigation as being eligible for federal aid funding, however; discussions are ongoing with the State to determine its acceptability. If not eligible for federal-aid funding, Caltrans still plans on funding the mitigation from other sources.

4.5 SOCIAL AND ECONOMIC IMPACTS

4.5.1 Public Safety/Local Accessibility

Local Accessibility

All of the build alternatives, except for the No Project Alternative, would affect local farm and farm service access from one side to another of the project because the expressway is a limited access facility. Access across the expressway would only be provided at the proposed intersections. Legal access to each remaining parcel must be maintained during construction and after the expressway is opened.

The Fredricks Alternative impacts local street access for 11 businesses located along Shank Road and State Route 111 in the Brawley industrial area, and access for the Del Rio Country Club. Caltrans has worked extensively with the city of Brawley and these businesses on a design to replace the local access and minimize out-of-direction travel or travel through the central portion of Brawley. Caltrans has a tentative agreement with the Railroad company to leave the railroad crossing open at Shank Road as shown in Case 1 on [Figure 2-5](#) and [Figure 2-6](#). The existing RR crossing is within the limits of the area affected by the expressway project and will be upgraded to current standards as part of the project.

The intersection variation with the RR crossing open would require minimal out-of-direction traffic for the local businesses, but only allows traffic to the east direct access onto local roads, all other traffic would need to access from the frontage road onto SR-111. The interchange variation with Shank Road RR crossing open allows the local businesses to directly access the local street network with minimal out-of-direction travel. If the RR crossing at Shank Road must be closed, both the interchange variation and the intersection variation would require local business traffic to use minor out-of-direction travel and state highway access for most directions of travel. The intersection variation would require the local businesses to use minor out-of-direction travel on a state highway in all directions. Please see Case 2 on [Figure 2-5](#) and [Figure 2-6](#). During public meetings, local farmers have indicated that Fredricks Road and Shank Road provide essential access for agricultural equipment and traffic. The agricultural equipment is often moved along these local roads during early morning hours to minimize traffic conflicts.

The Fredricks Alternative (Variation 1 and 2) would disrupt the continuation of Fredricks Road from SR-78/86 to SR-111, which may cause local farmers to travel to another local road or to use the expressway for short distances.

Local access on Shank Road would be disrupted with the Fredricks Alternative Variation 1 (see [Figure 2-9B](#)). Shank Road is centered between several major agricultural support facilities/businesses near its intersection with SR-111, just west of the railroad crossing. These businesses, located on both the north and south sides of Shank Road, include produce processing, chemical storage and sales, and repair shops. Shank Road is currently utilized as the principal access road for all the agricultural businesses in the area by providing local access for produce trucks, semi-trucks, and agricultural vehicles.

For Variation 1 of the Fredricks Alternative, the proposed expressway intersection with SR-111 would eliminate the existing intersection of Shank Road and SR-111. Access would be prohibited to SR-111, on the north side of the expressway, for Shank road and the parcels east of SR-111 (between Shank Road and the Country Club parcel). However, access to SR-111 on the south side of the expressway would be provided, via a frontage road. The proposed frontage road would intersect Shank Road, just west of the existing railroad crossing, and proceed south under the proposed railroad overhead structure to access SR-111 with a proposed non-signalized intersection.

Variation 2 of the Fredricks Alternative would not disrupt Shank Road, but would modify a portion of it and provide a system of frontage roads in the area of SR-111 (see [Figure 2-9E](#)). Access to SR-111 for Shank Road traffic, and parcels adjacent to SR-111, would be provided on both the north and south sides of the expressway.

Both variations of the Fredricks Alternative studied two different local access cases for the railroad crossing at Shank Road, as previously discussed in Section 2.2. Case 1 assumed that the railroad crossing would remain open and Case 2 assumed it would be closed (see [Figure 2-5](#) and [Figure 2-6](#)). Local property/business owners and local agencies (city of Brawley and Imperial County) are strongly opposed to the closure of the existing Shank Road crossing, which would eliminate a primary east-west agricultural transportation corridor. Therefore, the Fredricks Alternative (Variation 1 and 2) appears to only be viable if the railroad crossing remains open. The railroad company has agreed to keep the crossing open in exchange for funds to upgrade the existing crossing.

The Del Rio Country Club access road at SR-111 would be reconstructed for both variations of the Fredricks Alternative. Variation 1 would reconstruct the access road to intersect the reconstructed portion of SR-111 with a non-signalized intersection (see [Figure 2-9B](#)). Variation 2 would replace the existing access road connection to SR-111 with a signalized intersection (see [Figure 2-9E](#)). Full access to SR-111 for the Country Club would be provided in both variations.

Public Safety

Local business owners have expressed concerns that the Fredricks Alternative creates public safety conflicts due to the changes in access to the industrial area at existing SR-111 and Shank Road. Both of the grain processors distribute anhydrous ammonia to farmers for use as fertilizer in the grain fields. According to these businesses, anhydrous ammonia has handling restrictions due to its potential harm as an inhalant. Representatives of these facilities have indicated that due to safety and liability concerns, this hazardous substance is currently transported via Shank Road in order to avoid traveling on state routes and downtown city streets. Facility representatives have requested that access to the facility remain via a local road as opposed to using state routes.

Local Access Case 1, which is proposed for both variations of the Fredricks Alternative, would allow the existing railroad crossing to remain open on Shank Road, allowing local agricultural traffic to travel at slower speeds on a local road, which would optimize public safety.

Local Access Case 2, which closes the existing railroad crossing at Shank Road for both variations of the Fredricks Alternative, would force traffic onto existing SR-111 or the proposed expressway. The ambulance service located in the industrial park is not anticipated to have a longer response time due to the local access configuration.

The No Build Alternative may have an adverse impact on traffic safety along the SR-78, SR-111, and SR-86 corridors and on the local roads because the through traffic, primarily trucks, would increase substantially on the alternative routes. With the No Build Alternative in 2020, traffic is projected to increase by 56% within the downtown area, and by 300% over existing levels on SR-78. The downtown area is already at capacity and has the highest number of accidents. This area contains the downtown shopping and civic center and a school crosswalk. Traffic in this section of SR-78 would go down slightly with the build alternatives but is still projected to increase on the other sections of SR-78 within the city. With the build alternatives, these increases would range from 14% to 153%. However, 70% of the truck traffic is expected to utilize the expressway with the build alternatives.

Further, with the No Build Alternative, through trucks are likely to use the local county roads to access SR-86 expressway north of Brawley and save time. The local roads are narrow and often used by slow moving farm equipment, workers slowing to access dirt roads, and by school buses picking up or dropping off children. The fast moving through trucks create a safety conflict with these types of uses.

With the exception of the changes in local access in the industrial area on the Fredricks Alternative, it is not expected that any of the build alternatives would create a public safety issue with police or fire services because there are few residents and legal access would be maintained.

4.5.2 Economic/Bypass Impacts

Economic

Business owners in the industrial area along Shank Road and SR-111 and the Del Rio Country Club have expressed concerns over the impacts of the Fredricks Alternative on local access. The design has minimized these potential access impacts and allowed for design exceptions to accommodate the local access. It is uncertain as to whether or not these access impacts would result in a measurable economic effect. If the RR crossing were not left open at Shank Road, more time would be required to access these businesses from the local street network.

In addition to the access impacts associated with the Fredricks Alternative, several of the businesses have right-of-way impacts. The La Bolsa property is estimated as a full acquisition due to the project's impacts on the property's buildings. The owner of La Bolsa, Inc. indicated that he may retire and was not likely to relocate should the Fredricks Alternative be chosen. About 5 people are employed at La Bolsa, Inc., depending on the workload. Lesicka Construction would lose part of its equipment storage yard and carport. This is not expected to cause the company to relocate. Imperial Grain Growers (IGG) would lose the primarily vacant storage area in front of the grain warehouses. One office trailer and paved parking is located in this area. IGG has indicated that this loss of land would preclude planned expansion of their operations and requested relocation should the Fredricks Alternative be chosen as the preferred alternative. IGG processes 19.6 % of the wheat produced in the Imperial Valley. The easement access to ETX would be impacted and changed into a frontage road. This is not expected to change their operations significantly but ETX processes 25 % of the wheat produced in Imperial Valley. Therefore, 44 % of the processing for the number 10 agricultural commodity in Imperial Valley has the potential to be affected by the Fredricks Alternative.

The Del Rio Alternative and the Del Rio North Alternatives would partially impact Triangle Feeders, a cattle feedlot. These impacts are primarily to a storage area but the Del Rio Alternative also impacts one of the corral areas. These impacts are not expected to substantially affect operations at the feedlot since the majority of the property would remain intact and land is available adjacent to the feedlot if needed. The Del Rio Alternative would also impact an equestrian center. This impact has been estimated to be a full acquisition. Please see the Relocation section for additional details.

As stated under the Growth section, the project would support the anticipated growth due to international trade. Although all of the build alternatives would remove a small number of jobs from the agricultural sector, new permanent jobs in trade and industry should outweigh this impact. Also, the project construction cost ranges from about \$45,500,000 to \$54,500,000, depending on the alternative chosen. Average wage cost is 20.1% of the construction cost.ⁱ The project would directly create \$9,145,000 to \$10,954,000 in wage income. These wages would have an additional multiplier effect of 1.997 on service and support jobs resulting in indirect wages of \$18,264,000 to \$21,876,000. Economic benefits from profit and materials are often seen outside of the construction area but most of the wage income benefits are likely to be utilized in the immediate area. This constitutes a substantial benefit to Imperial County's economy.

The value of the agricultural property acquired by the proposed project would vary by both amount of land impacted and the quality of the farmland. Prime farmland generally sells for about \$4,000 an acre and Statewide Important farmland for about \$2,800 an acre. The acreage value of the farmland acquired would be about \$1,275,000 for the Fredricks Alternative, \$1,410,000 for the Fredricks Alternative with interchange, \$1,370,000 for the Del Rio Alternative, and \$1,453,000 for Del Rio North Alternative. This acreage used for highway right-of-way would be removed from the property tax rolls. The property tax lost to Imperial County would be 0.14 % of their annual property tax revenues of over \$10,000,000.

Added to the costs of the acreage would be the cost to cure operational damages caused by bisecting fields and replacing the necessary infrastructure to support farming on the new field layout. Caltrans expects to acquire the highway right-of-way without separating the parcels into new parcels on opposite sides of the project since the Imperial County General Plan requires a minimum 40 acre parcel in most of the project corridor. This limits flexibility to sell to another farmer on the other side of the project and may also increase farming costs because these fields could become less efficient to farm. These impacts would be lowest with the Fredricks Alternative, followed by the Del Rio Alternative, and then the Del Rio North Alternative.

Bypass Impacts

There are potential bypass impacts whenever a highway is moved from the center of a community. It is expected that some highway-oriented businesses would relocate to take advantage of new business locations adjacent to the new facility. Other businesses may seek to relocate to take advantage of improved highway access. Bypass effects can cause either adverse or beneficial impacts to local businesses, land owners, and the city bypassed. Because the population base is over 5,000, these bypass impacts are expected to be positive. This is because the population base is large enough to sustain the bypassed businesses. Improving traffic congestion in the downtown area may bring local residents into the area more frequently.

Although the Brawley area has experienced slow adsorption of new commercial and industrial development, such new development is designated on the city of Brawley General Plan, as shown in [Figure 3-8](#), adjacent to the proposed expressway on the east side of the city. Further, there is a new 16 ha (40 acres) commercial area designated within the Luckey Ranch Specific Plan at the intersection of existing SR-78 and the proposed expressway as shown in [Figure 3-8](#). This planning would allow new businesses wishing to relocate near the proposed project the opportunity to remain within the city of Brawley. Annexation of the active phase of Luckey Ranch into the city is expected in 2001. All of the alternatives would allow for new businesses within the city's Sphere of Influence as shown in [Figure 3-7](#). The Del Rio and Del Rio North Alternatives would encourage this development to the northeast of existing SR-111. Because of its closer proximity to the developed portions of Brawley, the Fredricks Alternative may encourage new businesses within the city's Sphere of Influence on Prime Farmland that is currently designated agricultural.

Mitigation Measures

A Business Route designation with gas, food and lodging signs at the intersections of the proposed expressway and existing at SR-78/86, SR-78 and SR-111 would direct appropriate traffic into the center of the city. By informing drivers of specific facilities (e.g. restaurants, hotels, gas stations, etc.) available in Brawley through signage, there may be less of a detrimental impact on the local community's economy caused by the detour around the city. Further, the project would provide an aesthetically pleasing "City of Brawley" sign at the intersection of the 78/111 Bypass and SR-78 in the southeast section of Brawley. Sign details would be coordinated with the city of Brawley.

4.5.3 Community Cohesion/Character

The build alternatives would move a substantial portion of the through traffic out of the city of Brawley's downtown shopping and civic center. Nearly 70% of the truck traffic is expected to use the 78/111 expressway. Currently, the traffic degrades the community character and increases the chance of accidents in this section of the city as discussed in [section 1.3.2](#). With the exception of the industrial area on the Fredricks Alternative, and impacts to the Del Rio Country Club by the Del Rio and Fredricks Alternatives, the build alternatives avoid direct impacts to existing communities. The clubhouse area of the Del Rio Country Club would not be affected by either of these alternatives. Therefore, potential impacts to community events held in this location should remain minor.

All of the build alternatives would increase the noise substantially near several homes located well off existing SR-111 near the south end of the project. The levels would increase to 65 dBA from 47 dBA, nearly a four-fold increase of the perceived noise levels. The physical presence of the expressway would also create a substantial change in the character of the area. Each build alternative also causes substantial visual and noise impacts to isolated residences farther north of the city of Brawley. These impacts would increase to about 69 dBA from about 45 dBA, depending on the site. Noise created by the proposed project would not create a large effect on community cohesion due to the low density of development within the project study area.

There would be substantial noise and visual impacts at specific locations within the Del Rio Country Club with both the Fredricks Alternative and the Del Rio Alternative. Both the noise and visual impacts to the Del Rio Country Club are greatest with the Del Rio Alternative. Please refer to sections 4.8 (Visual) and 4.9 (Noise) for detailed information.

Community cohesion would be impacted by the blocked views, bridges, highway appurtenances, and elevation of the roadway that would result from the bypass project. The existing visual character is rural/agricultural, and with the bypass project, will change to semi-urban. For some alternatives, the bypass will not only create a visual barrier but also a physical barrier. The existing views of the rural landscape would be blocked thus creating a lack of cohesion of the area, both physically and visually.

Although there are few homes near the project, these noise and visual impacts represent a substantial change in the rural character for the affected residents and for patrons of the Del Rio Country Club Golf Course.

4.5.4 Environmental Justice

In 1994, President Clinton signed Executive Order 12898: "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations." The Executive Order requires that each federal agency, to the greatest extent allowed by law, shall administer and implement its programs, policies, and activities that affect human health or the environment so as to identify and avoid "disproportionately high and adverse" effect on minority and low-income populations. The U. S. Department of Transportation is committed to embracing the objectives of Executive Order 12898 by promoting enforcement of all applicable planning and environmental regulations and by promoting nondiscrimination in its programs, policies and activities that affect human health and the environment consistent with both E. O. 12898 and Title VI of the Civil Rights Act of 1964.

The Final Strategy for implementation of E.O.12898 was published in the Federal Register on June 29, 1995. The objectives can be summarized as follows: 1) improve the environment and public health and safety during the transportation of people and goods and develop and maintain transportation systems and services, 2) harmonize transportation policies and investments with environmental concerns which reflect an appropriate consideration of economic and social interests, and 3) consider the interests, issues, and contributions of affected communities, disclose appropriate information, and provide communities with the opportunity to be involved in decision making.

The primary elements of the Department of Transportation Strategy include: 1) public outreach for implementation of the strategy; 2) creation of a DOT Order on Environmental Justice which will a) review existing policies and programs, b) develop guidelines for determining whether or not an action is likely to have a disproportionately high and adverse human health or environmental effects on low income and minority communities, and c) develop consistency between Environmental Justice objectives and the requirements of other statutes; and 3) train program managers to incorporate the Environmental Justice policies.

The project is located primarily in the rural portion of Imperial County and displaces isolated rural homes. The relocation impacts are few and proximity impacts are minimal because of the low density of homes of this rural community. However, since Imperial County has a very high rate of persons below the poverty level (22%) and a high percentage of Hispanic residents (66%), it is very likely that a few minority individuals with low incomes will be affected by the project. However, because of the project's rural location, entire low-income minority communities will not be affected. Because of the high numbers of low-income minorities within Imperial County, it is also probable that any alternative rural location would impact a few minority individuals.

The Caltrans Relocation Assistance Program provides personal and bilingual assistance for all qualifying displaced residents. Caltrans held a series of public scoping workshops featuring the proposed project. These were held in Brawley, El Centro and Calexico in September of 1996

and again in El Centro in February of 1997 as part of the Imperial County Transportation Plan approval. A public scoping meeting for SR-78/111 was held in October of 1996 and a public map showing was held in May of 1999. Further, Caltrans has and continues to coordinate with Imperial County and the city of Brawley regarding the decision making process, project schedule, project design features, and special impacts and mitigation measures. A list of these meetings is available in [Chapter 6, Comments and Coordination](#).

Although the proposed project is likely to affect low income or minority individuals but not populations, it is not anticipated that any effect would be disproportionately high after considering the project's benefits and mitigations to all the impacted populations. Should a greater number of businesses choose to relocate with the Fredricks Alternative, this determination is subject to change to a disproportionate impact. The overall adverse impacts to any population are considered minor given the rural nature of the project. Therefore, E.O. 12898 regarding environmental justice has been satisfied.

4.6 RELOCATION IMPACTS

All of the build alternative would require the acquisition of new right-of-way. Right-of-way issues include impacts to residences, businesses, agricultural fields, IID facilities, private irrigation and tile-drain facilities, and existing utilities. The approximate amount and cost of new right-of-way required for each alternative is as follows:

TABLE 4- 2

Amount	Cost
• 149.8 ha (370 acres) for Fredricks, Variation 1	\$11,733,000
• 157.1 ha (388 acres) for Fredricks, Variation 2	\$12,673,000
• 158.5 ha (391 acres) for Del Rio	\$9,002,000
• 165.8 ha (409 acres) for Del Rio North	\$10,032,000

Approximately 23 to 26 agricultural parcels of varying sizes would be impacted by each of the build alternatives. Partial acquisitions would be required on most of these parcels. Agricultural improvements such as concrete irrigation ditches, IID delivery gates, drainage ditches and related drop inlet structures, subsurface tile drains and baselines, and farm roads would be impacted. The IID facilities that would be relocated to perpetuate agricultural activities are listed in Table 4-3.

The Fredricks Alternative would result in a full acquisition of La Bolsa, Inc., a construction firm specializing in farm drainage systems. The property is approximately 4 ha (10 acres) in size and improved with two structures and diesel and gasoline storage tanks and pumps. One of the structures is an office and the other structure is utilized as a repair and storage facility for construction equipment. Approximately 2.4 ha (6 acres) would be required from this parcel. The business owner has indicated that he is ready to retire and has no plans to relocate the business.

Adjacent to the La Bolsa, Inc. property, is the Imperial Grain Growers site for handling and distributing fertilizer, seed and grain on behalf of its cooperative members. This parcel is also approximately 4 ha (10 acres) in size and the project would impact approximately 2 ha (4.3 acres). The property is improved with two large grain storage structures, two large anhydrous ammonia storage tanks, a rail spur, and various other improvements utilized for the storage and processing of seed, fertilizer, and grain on site. Goods arrive and depart from the IGG cooperative by both carrier truck and rail. Anhydrous ammonia is distributed to the fields by small trucks and trailers. IGG representatives indicated that shipment by rail is economically advantageous with rates approximately 0.67 of trucking costs. The rail spur is jointly used with El Toro Export (ETX). IGG representatives also indicated that they would like to expand the rail spur in order to store more rail cars on site. The proposed project would impact their preferred site for the rail spur expansion. The project does not, however, impact the other essential facilities on site.

TABLE 4- 3**Imperial Irrigation Facility Impacts**

Alternative	Number of Impacted Facilities	Relocation	Reconstruction	Total Impacts
Fredricks (Variation 1)	16	2,720 m (8,924 ft)	1,175 m (3,855 ft)	3,895 m (12,779 ft)
Fredricks (Variation 2)	16	3,430 m (11,254 ft)	1,175 m (3,855 ft)	4,605 m (15,109 ft)
Del Rio	19	951 m (3,120 ft)	1,611 m (5,286 ft)	2,562 m (8,406 ft)
Del Rio North	18	400 m (1,312 ft)	2,335 m (7,661 ft)	2,735 m (8,973 ft)

Therefore, the impact to IGG is considered a partial acquisition. Should relocation of IGG become necessary, a suitable site would require an area where a rail spur could be added and anhydrous ammonia could be stored and handled safely. Such a site would likely be located outside of the city of Brawley, along the rail corridor and perhaps in existing agricultural land. Due to the needs of the business, the relocation would be difficult, costly and require a long lead time.

The Lesicka Trust property is a 1.6 ha (4 acres) property located directly south of the La Bolsa, Inc. property. Local access roads to the adjacent businesses would require less than 0.4 ha (1 acre) of the property at the west end of the property along existing SR-111. Part of this right of way would also be needed for grade changes on SR-111 with the intersection variation. This partial acquisition would impact an equipment storage yard and carport structure utilized by Lesicka Construction. Four other businesses with leases on this parcel are not expected to require relocation with the local access as defined in [Figure 2-5](#) and [Figure 2-6](#).

The Fredricks Alternative would also affect, or potentially affect, the access for El Toro Export, Big Valley Packers, the Benson Onion Shed, the Jacobson Warehouse and the Del Rio Country Club. Due to careful redesign of the local access alternatives, it is not expected that relocation of these businesses would be required.

The Fredricks Alternative also impacts a Future Farmers of America (FFA) pig barn located near the New River bridge crossing. The FFA is a youth organization that emphasizes responsibility while learning to raise farm animals and products. Although the project avoids the majority of the improvements, legal access to the property would be severed. Also, the property owner, a local veterinarian, has indicated that both the construction noise and highway operation noise are likely to increase the stress level of the pigs. Construction noise may be particularly loud because of the pile driving required for the New River bridge crossing. Increased stress levels would make the pigs less competitive due to slower weight gains. It is anticipated that this use would be a full acquisition. Relocation may be difficult due to the low rent and need to isolate the barn from other uses. Further, if unable to relocate, the loss of this facility is a loss of a community resource.

Both the Del Rio and the Del Rio North Alternatives would affect the Triangle Feeders cattle feedlot. The feedlot operation consists of about 20 ha (50 acres) on several parcels. The right-of-way impact would approximately 3 ha (7.5 acres) with the Del Rio Alternative and approximately 2.4 ha (6 acres) of the property for the Del Rio North Alternative. Both alternatives avoid major improvements on the property with the primary impact located on the eastern side of the facility in the manure storage area. The Del Rio Alternative impacts several of the cattle pens as it turns to the northwest. The partial take is not expected to effect operations. The owner of the property also owns several contiguous parcels to the west with abandoned residences onto which the feedlot could expand if necessary.

The Del Rio Alternative would impact one residence and their place of business, the Jerge School of Horsemanship. The property is located at 4951 Best Road and is approximately 4 ha (10 acres) in size. Approximately 1 ha (2 acres) would be directly impacted by the Del Rio Alternative. The property is improved with a modular home and stable facilities. Other than water and utility services, only the large, lighted riding area would be affected by the project but it is an important element of the stable operation. The owner has indicated that they would be unable to reconfigure the facility on the remainder of the property. Most of the improvements on the property could be moved but this would be difficult and finding another property of a similar size in the area may be difficult. Also, the ability to meet potable water requirements in rural locations is an increasing issue in Imperial Valley. A long lead time for relocation would

be necessary. If unable to relocate, the loss of this facility would be a loss of a community resource because it represents a unique equestrian facility in the Brawley area.

The Del Rio North Alternative would impact a farm residence, resulting in a full acquisition. The residence is located at 5110 Best Road on a separate parcel from the adjacent field. Comparable residential relocation is readily available in Brawley but may be difficult to attain in a similar rural location due to zoning and potable water requirements.

The assessment of the ability of certain groups or individuals to handle the disruption and change in living conditions and circumstances brought about by relocation is quite often subjective and not quantifiable. Nonetheless, it is recognized that impacts to individuals and families can occur and manifest themselves in changes in attitudes and behavior, and, result in the severance of established relationships and patterns of interactions. The elderly, the disabled, and children of school age tend to experience a variety of problems in adjusting to relocation. Such manifestation occurs as anxiety, depression, and difficulty in establishing new friendships.

Mitigation Measures

Relocation assistance payments and counseling will be provided to all eligible residents in accordance with the Uniform Relocation and Assistance and Real Properties Acquisition Act. The Caltrans Relocation Assistance Program will ensure that all relocated residents receive decent, safe, and sanitary housing. No residential occupant will be displaced unless replacement housing is available. Those who are displaced have the option of relocating anywhere, although they will have to pay for the move mileage if they move beyond an 80 km (50 mile) radius.

For 42 months, eligible residential tenants will be entitled to certain supplemental payments, to compensate for increased rents, and moving expenses. The rental supplement can be taken in a lump sum payment to allow for a down payment on a home. Eligible homeowners will be entitled to certain supplemental payments to compensate for increased cost of replacement homes, increased interest and other expenses. The displaced business, if unable to relocate or expected to suffer a substantial loss of existing patronage, may be eligible for an “in lieu” payment based on their earnings and not to exceed \$20,000. Each displaced individual will be assigned a Relocation Assistance Advisor to ensure that the needs of each individual are met and that the relocation is accomplished smoothly without undue hardship to those affected. Please see [Appendix C](#) for additional information.

The final adjustments for the project impacts to agricultural fields will be made during the design and right-of-way acquisition process. Caltrans will replace the necessary infrastructure to make each field viable or pay fair damages to the property owner. Small remnants may be purchased and resold as excess land provided that the zoning is compatible with the Imperial County General Plan.

4.7 BIOLOGICAL RESOURCE IMPACTS

A summary of biological impacts is provided in [Table 4-4](#). [Figure 3-1A](#), [Figure 3-1B](#), [Figure 3-1C](#), [Figure 3-1D](#), [Figure 3-1E](#), [Figure 3-1F](#), [Figure 3-1G](#), [Figure 3-1H](#), [Figure 3-1I](#), [Figure 3-1J](#), [Figure 3-1K](#), [Figure 3-1L](#), and [Figure 3-1M](#) show locations of biological resources impacted by each alternative. Also, a list of plant and animal types can be found in [Appendix B](#).

4.7.1 Wetlands/Waters of the US

The jurisdictional wetlands impacted by each alternative are minimal, except for CDFG salt cedar tamarisk woodland. The New River is heavily disturbed and invaded with salt cedar.

The ACOE currently accepts the 1987 Wetland Delineation Manual (ACOE 1987), which requires that three criteria be met for an area to qualify as a wetland. These include hydrophytic vegetation, wetland hydrology and wetland soils. The wetland assessment methodology can be found in greater detail in the Wetland Delineation technical study.

Fredricks Alternative

Impacts include, 1) 0.08 ha (0.19 acres) of ACOE jurisdictional wetland dominated by salt cedar, 2) 0.09 ha (0.23 acres) of ACOE jurisdictional wetland dominated by iodine bush, and 3) 2.99 ha (7.40 acres) of California Department of Fish and Game (CDFG) regulated woodland dominated by salt cedar ([Figure 3-13A](#)). ACOE waters of the U.S. would not be impacted. The total area of impact for this alternative to Imperial Irrigation District (IID) drains is approximately 1.1 ha (2.8 acres) ([see Table 4-4](#)). Although the system of IID drains is an artificial one, it constitutes a unique mini-ecosystem in the Imperial Valley providing habitat for many different kinds of wildlife. Impact to the IID canals is approximately 0.63 ha (1.57 acres) for Variation 1 and 1.87 ha (4.62 acres) for Variation 2.

Del Rio Alternative

In addition to the major drains and canals being impacted, several small, unnamed field delivery ditches and drains would also be affected. Impacts include, 1) 0.004 ha (0.01 acres) of ACOE jurisdictional wetland dominated by salt cedar and 2) 3.48 ha (8.60 acres) of CDFG regulated woodland dominated by salt cedar ([Figure 3-13A](#), [Figure 3-13B](#) and [Figure 3-13C](#)). ACOE waters of the U.S. would not be impacted. One unnamed drain containing a narrow area of cattail would be impacted by this alternative.

Del Rio North Alternative

Impacts include 0.83 ha (2.05 acres) of CDFG regulated salt cedar dominated woodland. ACOE waters of the U.S. and ACOE jurisdictional wetland would not be impacted ([Figure 3-13A](#), [Figure 3-13B](#), and [Figure 3-13C](#)).

Wetland Mitigation

Mitigation will consist of acquisition and restoration of land in the vicinity of the Right of Way along the New River. The estimated cost for mitigation would range between \$50,000 to \$70,000. The goal of the mitigation plan is to replace the function and values of ACOE wetlands impacted by the project. After an alternative is selected and during the permit process, site specifics, mitigation success criteria, and monitoring criteria for evaluation of the mitigation will be determined in coordination with the ACOE and the CDFG. The mitigation plan will be completed and approved by the ACOE and CDFG before any ACOE jurisdictional or CDFG regulated areas are impacted.

The Frederick, Del Rio and Del Rio North alternatives each impact less than 0.2 ha (0.5 acres) of wetlands. As such, these alternatives will qualify for Nationwide Permit 14, *Linear Transportation Crossings*.

4.7.2 Habitat Impacts

Fredricks Alternative

This alternative presents impacts to salt cedar dominated woodland, salt cedar dominated wetland, IID Canals and IID Drains (see [Table 4-4](#)). In addition, it is the only alternative which impacts iodine bush dominated wetland. The floodplain in this area is broad and supports a complex assemblage of wetlands. Although dominated by salt cedar, this area also includes riparian habitat and is considered of high ecological value.

Del Rio Alternative

This alternative impacts an area lacking in habitat diversity. A major portion of the impacted salt cedar woodland (see [Table 4-3](#)) is located east of the New River between agricultural fields. Approximately 124 m² (1,360 ft²) of the vegetated area would be impacted by the Del Rio Alternative.

Del Rio North Alternative

This area lacks habitat diversity. Because cliffs and agricultural fields line the river through this area, only a narrow band of salt cedar woodland exists along the river (see [Table 4-5](#)).

4.7.3 Wildlife Corridor Impacts

The proposed bridging of the New River would include potentially substantial impacts to wildlife movement. The proposed New River crossing would consist of two bridges 26 m (85 ft) apart. Each bridge would be approximately 76 m (250 ft) long, 14 meters (45.5 ft) wide and 6.4-10.8 m (21-31 ft) high. Each alternative's impacts on wildlife movement is discussed below.

Fredricks Alternative

The broad floodplain within this alternative area supports a diverse habitat. Although it is dominated by salt cedar it also has areas of alkaline playas dominated by iodine bush and transitional salt cedar-big saltbush habitat. There are no agricultural activities currently being conducted in this area of the floodplain. The potential for wildlife movement in this area is high due to its location within floodplain and the abundance of vegetation both upstream and downstream. Although the proposed bridges would allow for terrestrial wildlife movement, the existing area available for movement will be reduced ([Figure 3-1F](#), [Figure 3-1G](#), [Figure 3-1H](#), [Figure 3-1I](#) and [Figure 3-1J](#)). There is a greater potential for road kills because of the narrow bridge width, compared to the width of the habitat. Not only would construction of this alternative present an added obstacle to wildlife movement it would also impact the biological diversity of this area of the floodplain.

The Fredricks Alternative (Variation 1) proposes two parallel bridges, 95 m (312 ft) in length, over the New River. These bridges would have approximate heights of 10 m (33 ft) and would accommodate wildlife corridors, 18 m (59 ft) wide, on each side of the river. The Fredricks Alternative (Variation 2) proposes two parallel bridges, 100 m (328 ft) in length, over the New River. These bridges will have approximate heights of 11 m (36 ft) and will accommodate a wildlife corridor 12 m (39 ft) wide, on each side of the river.

Del Rio Alternative

This alternative includes impacts to a large area of salt cedar dominated woodland. The salt cedar woodland is located within an isolated area of the floodplain between agricultural land and a sewage treatment facility. Presumably wildlife movement in this area is limited, because of adjacent land uses and since the river is narrow and confined by steep banks.

This alternative proposes two parallel bridges, 76 m (249 ft) in length, over the New River. These bridges would have approximate heights of 12 m (39 ft) and would accommodate wildlife corridors, 12 m (39 ft) wide, on each side of the river.

Del Rio North Alternative

In the area of the river crossing, the river abuts cliffs and agricultural land with only a narrow band of salt cedar along the river. Presumably wildlife movement in this area is limited, because of adjacent land uses and since the river is narrow and confined by steep banks.

All areas of the New River serve as wildlife corridor, however, only the area in the vicinity of the Fredricks Alternative contributes substantially to regional wildlife movement.

This alternative proposes two parallel bridges, 71.5 m (235 ft) in length, over the New River. These bridges will have approximate heights of 12 m (39 ft) and will accommodate wildlife corridors, 12 m (39 ft) wide, on each side of the river.

Mitigation Measures

Mitigation for impacts to wildlife movement will include the installation of 2m (6 ft) chain-link fencing in areas of habitat in the New River floodplain. The fencing will be positioned to prevent animals from accessing the highway and to direct them under the bridges. For all alternatives, the proposed bridges allow for upland areas adjacent to the New River. In addition, enhancement and creation of wetlands will occur in areas near the bridges.

TABLE 4- 4**SUMMARY OF BIOLOGICAL IMPACTS BY ALTERNATIVE**

AFFECTED RESOURCE	FREDRICKS ALT. VAR.1	FREDRICKS ALT. VAR.2	DEL RIO ALT.	DEL RIO NORTH ALT.
Salt Cedar Dominated Woodland CDFG Code 1601	3.03 ha (7.48 ac)	2.99 ha (7.48 ac)	3.48 ha (8.60 ac)	0.83 (2.05 ac)
Salt Cedar Dominated Wetland ACOE Jurisdictional, CDFG Code 1601	0.08 ha (0.19 ac)	0.08 ha (0.19 ac)	.004 ha (0.01 ac)	0.0
Iodine Bush Dominated Wetland ACOE Jurisdictional, CDFG Code 1601	0.09 ha (0.23 ac)	0.09 ha (0.23 ac)	0.0	0.0
ACOE Waters of the U.S.	None	None	None	None
IID Canals	0.63 ha (1.57 ac)	0.26 ha (4.62 ac)	0.26 ha (0.64 ac)	0.23 ha (0.57 ac)
IID Drains CDFG Code 1601	1.12 ha (2.77ac)	1.12 ha (2.77 ac)	0.82 ha (2.03 ac)	0.56 ha (1.38 ac)
Wetland Functions and Values	High	High	Moderate	Low
Sensitive Vegetation Communities			124 m ² (1360 ft ²) Freshwater Marsh	
Eucalyptus trees	8	8	None	None
Date palms	16	16	None	None
Sensitive Plants	None	None	None	None
Sensitive Wildlife	6 pair of burrowing owls	6 pair of burrowing owls	3 pair of burrowing owls	7 pair of burrowing owls
	Potential mountain plover foraging habitat	Potential mountain plover foraging habitat	Mountain plover foraging habitat	Mountain plover foraging habitat
	Potential Southwestern willow flycatcher foraging habitat	Potential Southwestern willow flycatcher foraging habitat	Southwestern willow flycatcher foraging habitat	Potential Southwestern willow flycatcher foraging habitat
	Potential indirect impacts to Yuma clapper rail	Potential indirect impacts to Yuma clapper rail	None	None
Wildlife Movement	High	High	Moderate	Low
Habitat Isolation	High	High	Low	Low

4.7.4 Sensitive Species

Sensitive Wildlife

Potential substantial impacts would occur to the western burrowing owl regardless of the alternative chosen. The impact is considered substantial given the sensitivity of the species, the number of birds impacted, and the regional importance of this population.

Direct impacts to the Yuma clapper rail are not anticipated for any of the alternatives. There is a potential for indirect impacts during construction and regular use of the Fredricks Alternative. Indirect impacts may include construction and traffic noise, increase in dust and debris, non-natural lighting, and shading from bridge structures.

Impacts to breeding, southwestern willow flycatchers and their nesting habitat are unlikely for any of the alternatives. However, southwestern willow flycatcher foraging habitat would be impacted by the Del Rio Alternative. The Fredricks and Del Rio North Alternatives may also potentially impact foraging habitat.

Sensitive Plant Communities

A small area of freshwater marsh would be impacted by the Del Rio Alternative. Although this drain was vegetated during the survey period, in all probability the vegetation would be removed in the near future during regular IID maintenance. The Fredricks Alternative would impact 16 date palms and 8 very large eucalyptus trees.

Habitat Isolation

Only the Fredricks Alternative would potentially isolate sensitive species habitat. This alternative may isolate areas of Yuma clapper rail within the floodplain of the New River. The proposed bridging over the New River would allow for wildlife movement, however the resulting conditions under the bridge may not be favorable for clapper rail movement.

Mitigation Measures

A summary of the recommended mitigation measures for each alternative is provided in [Table 4-5](#). Mitigation for ACOE wetlands and waters and CDFG regulated areas will be finalized during the permitting process. A detailed mitigation plan will be presented during this process.

Recommended mitigation will occur near the project limits using existing farmland within the New River floodplain. The proposed wetland impact mitigation ratio is 2:1, for impacts to waters of the US and salt cedar woodland, the ratio is at a proposed 1:1 level. Enhancement will include removing salt cedar and other exotics and planting and seeding native plants suitable for saline soils of the New River floodplain. The proposal to remove salt cedar would allow planted and seeded native species the chance to establish themselves and would not be intended to eliminate salt cedar on a long-term basis. Attempts to remove the exotic tamarisk would be of a short-term nature due to the extensive areas of this species upstream. In addition, all areas within the New River, outside of the project limits, will be designated as Environmentally

Sensitive Areas to preclude access during construction. Any impacts to ACOE jurisdictional areas will require Section 404 and 401 permits from the ACOE. A CDFG 1601 Streambed Alteration Agreement also will be required for impacts to CDFG jurisdictional areas. Formal Section 7 consultation has not been requested/initiated for this project. Ultimately, the requirement for a formal consultation will be decided by the USFWS based on a evaluation of project impacts (varying by alternative) upon listed species. To date, informal discussions with the USFWS have focused on survey protocols and species usage of the lands within/adjacent to the proposed Brawley Bypass.

Bats and Bridges

The USFWS has encouraged the use of expansion joints and design details to encourage and provide roosting areas for bats and to potentially benefit the bat population of Imperial County; bats benefit farming because of the large number of insects they consume. Although project related impacts to bats are not expected, the construction of “bat-friendly” bridges will help to mitigate the adverse effects of the project on wildlife.

In 1995 Caltrans began collecting data on bat use of bridges. This data, plus other recent research (i.e. Bat Conservation International’s Bats and Bridges Project) will be used during the design phase of the project to incorporate new and/or improved features designed to attract bats. Structural features may include artificial crevices to create habitat for bats under the New River bridges.

Replacement of Mature Trees with Native Stock

Mitigation for impacts to eight mature eucalyptus trees on the Fredricks Alternative is the planting of 15-gallon native trees at a 7:1 ratio. The sixteen date palm trees impacted by the Fredricks Alternative were recently relocated and the chances of surviving another transplant are diminished. Mitigation will consist of replacement planting of native California fan palms of the same size at a 2:1 ratio. Permanent irrigation will be supplied for tree plantings if facilities are available. The appropriate planting locations and the appropriate plant species will be determined by District Landscape Architect the District Biologist.

Species of Concern

Mitigation for impacts to burrowing owls is to establish a construction window that would avoid any work during the breeding season (February 1 to August 31). This measure would reduce impacts to breeding burrowing owls and all other migratory breeding birds.

If a construction window is not practicable and construction is expected during part of the breeding season, specific measures need to be undertaken prior to February 1. Surveys for owls will be conducted and they will need to be excluded from their burrows (see details below) in order to avoid impacts to non-breeding owls. This should be done prior to construction of the proposed project and relocation of any agricultural drains by IID.

A qualified biologist must survey within the impact area and excavate all owl burrows and potential owl burrows within the impact zone plus an additional 50 m (164 ft) beyond the impact zone to prevent any owl nesting on site. The surveys and excavations should be based on methods established by the USFWS and the California Burrowing Owl found in the Biological Resource Report. Additional surveys under the supervision of a biologist will be needed on a weekly basis until construction begins to assure that new burrows are not created or occupied. If, despite these efforts, owls are found nesting within the right-of-way during construction, the nest must be designated an Environmentally Sensitive Area and no construction shall be allowed within a radius of 75 m (250 ft) until nesting is complete.

In addition, there will be no direct impacts to canals or drains that run parallel to the proposed project corridor. These areas will be designated as Environmentally Sensitive Areas. This would also avoid any potential impacts to burrowing owls using the banks of the canals and drains for burrows.

The mitigation for wetlands and waters of the U.S. and CDFG regulated areas will be designed to encourage foraging by southwestern willow flycatchers. Included in the mitigation will be dense planting of willows, cottonwoods, medium-sized trees and other shrubs to create and enhance foraging habitat.

All vegetation clearing within the construction zone will be conducted outside of the breeding season (February 1 to July 31) to avoid impacts to migratory birds and raptors nesting within the project area. If this is not possible, a preconstruction survey will be required to assure that birds are not nesting in any of the vegetation to be cleared. If birds are nesting, the nest and tree must be designated an Environmentally Sensitive Area and no construction will occur within a radius of 75 m (250 ft) until nesting is complete.

4.7.5 Invasive Species

On February 3, 1999, signed Executive Order 13112 was approved, requiring Federal agency action to combat the introduction or spread of invasive species in the United States. Federal Highway Administration guidance issued on August 10, 1999 directs the use of the state's noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

Mitigation Measures

None of the species on the California list of noxious weeds are currently used by Caltrans in Imperial County for erosion control or landscaping. The landscaping and erosion control for the proposed project will not use species listed as noxious weeds. A qualified biologist will monitor the site immediately prior to and during construction, to identify presence of noxious weeds, and will recommend measures to control the spread of such weeds. In areas of particular sensitivity, such as those adjacent to the New River, extra precautions will be taken if invasive species are found in or adjacent to the construction areas, and to avoid the inadvertent introduction of invasive species. These precautions may include the inspection and cleaning of construction equipment and eradication strategies should an invasive species occur. Any noxious weeds growing within the project right-of-way will be removed. The Imperial County Agriculture

Department requires Caltrans to control the presence and spread of weedy species adjacent to the agricultural fields through regular maintenance. This is accomplished with heavy equipment, such as loaders and motor graders, in areas where exotic plant density is high, native and landscaped species are absent, and impacts to other natural or cultural resources are negligible. Manual removal is used in areas with limited populations or large individual plants.

The project site consists of two general habitat areas: agricultural fields and the New River floodplain. The invasive/weedy species found in the agricultural fields are not expected to establish in the New River floodplain because of the highly saline and saturated soils found there. In the New River floodplain, the invasive species salt cedar is permanently established. For this species, adequate control methods are not available beyond Caltrans right-of-way and populations are too widespread for eradication to be feasible. The most effective action is to prevent their spread or lessen their impacts through limiting dispersal. The most appropriate way to prevent dispersal is to contain the plant materials on-site. If it is necessary to remove salt cedar from the project site, extra measures will be taken to avoid contaminating other areas with live plants and seed. These measures will include covering the transport vehicles and disposing the plant material at an approved site.

TABLE 4- 5

SUMMARY OF RECOMMENDED MITIGATION MEASURES

AFFECTED HABITAT	FREDRICKS ALTERNATIVE 1	FREDRICKS ALTERNATIVE 2	DEL RIO ALTERNATIVE	DEL RIO NORTH ALTERNATIVE
Salt Cedar Dominated Woodland CDFG Code 1601	Enhance 1:1 2.99 ha (7.40 ac)	Enhance 1:1 2.99 ha (7.40 ac)	Enhance 1:1 3.48 ha (8.60 ac)	Enhance 1:1 0.83 ha (2.05 ac)
Salt Cedar Dominated Wetland ACOE Jurisdictional, CDFG Code 1601	Create 2:1 0.16 ha (0.38 ac) of native wetland	Create 2:1 0.16 ha (0.38 ac) of native wetland	Create 2:1 0.008 ha (0.02 ac) of native wetland	None
Iodine Bush Dominated Wetland ACOE Jurisdictional, CDFG Code 1601	Create 2:1 0.18 ha (0.46 ac) of native wetland	Create 2:1 0.18 ha (0.46 ac) of native wetland	None	None
ACOE Waters of the U.S.	None	None	None	None
IID Canals	None	None	None	None
IID Drains CDFG Code 1601	Clearing outside of the breeding season	Clearing outside of the breeding season	Clearing outside of the breeding season	Clearing outside of the breeding season
Sensitive Vegetation Communities	None	None	Clearing outside of the breeding season	None
Eucalyptus trees	Replacement planting 7:1	Replacement planting 7:1	None	None
Date palms	Relocate and supplemental planting at 2:1	Relocate and supplemental planting at 2:1	None	None
Sensitive Plants	None	None	None	None
Sensitive Wildlife	Preconstruction surveys and exclusion by excavation of burrows	Preconstruction surveys and exclusion by excavation of burrows	Preconstruction surveys and exclusion by excavation of burrows	Preconstruction surveys and exclusion by excavation of burrows
	Create an enhanced foraging habitat for the southwestern willow flycatcher	Create an enhanced foraging habitat for the southwestern willow flycatcher	Create an enhanced foraging habitat for the southwestern willow flycatcher	Create an enhanced foraging habitat for the southwestern willow flycatcher
Nesting birds, Migratory birds, and raptors	Clearing outside of the breeding season	Clearing outside of the breeding season	Clearing outside of the breeding season	Clearing outside of the breeding season
Wildlife corridors and habitat linkages	Fencing of the highway at the New River	Fencing of the highway at the New River	Fencing of the highway at the New River	Fencing of the highway at the New River

* Caltrans and IID will need to coordinate to ensure that mitigation measures are implemented during drain and canal relocation work

4.8 Visual Impacts

4.8.1 Methodology

The expected visual effects of the project are evaluated according to guidelines outlined in the Federal Highway Administration publication “Visual Impact Assessment for Highway Projects” (March 1981). The first step in determining the visual impacts of the project is to determine the change to visual resources caused by the project, the second step is to determine the viewer response to that change.

Levels of Impact

The visual quality impacts for views to and from the expressway are categorized in the visual study as low, moderate, moderately high, and high according to the following criteria:

- Low – minor negative change in visual quality caused by the project - or slightly affecting the resource - or the viewers are not sensitive to the change - or the viewers are at a great distance from the change.
- Moderate – moderate negative change in visual quality caused by the project that can be mitigated by conventional landscape architectural practices. Viewer response level is moderate. Impact can be mitigated within three years.
- Moderately high – major negative change caused by the project due to substantial visual change in the resource and high viewer response. Substantial architectural and landscape treatment required. Will generally take longer than three years to mitigate.
- High – major negative impact to the extent that architectural and landscape treatment would not mitigate the impacts. An alternative project solution may be required.

Key View Simulations

Visual simulations are used as an analytical tool for determining visual impact levels. Visual simulations were prepared for six candidate sensitive visual receptors based on visibility, sensitive viewer locations, and locations where major project elements are being proposed (see [Figure 3-14](#) for key view locations). Each key view exhibit includes an existing conditions photograph and a computer-generated simulation of the final project.

Key View Simulations

Key View A ([Figure 4-1](#))

This single-family residence (corner of Fredricks and Kalin Roads) is representative of homes whose residents will have foreground views of the proposed project. Existing visual quality at this site is considered moderate. The resulting visual quality, with the implementation of the Fredricks Alternative, would be low. The proposed project would appear as a new visual feature. Mid-range to distant views would be blocked due to the flat topography, and the proposed elevation of the roadway.

Even though the viewer response for this alternative would be high due to the close proximity of the proposed facility and the long duration of views from the residence, the overall viewer response is considered moderate due to the small number of residences affected. The existing visual character is rural/agricultural with a resulting change to semi-urban. The overall visual impacts for residents with foreground views would be moderate. This change in visual character would not be compatible with the existing rural residential setting. Combining the moderate changes in visual quality, the changes to visual character and the moderate viewer response, the resulting impacts for residents would be moderately high with foreground view.

Key View B ([Figure 3-15](#))

This single-family residence (near the intersection of Fredricks and Hovely Roads) is representative of homes whose residents would have mid-ground views of the proposed project. The visual quality, character and viewer responses would be similar to Key View A, except the physical barrier imposed by the project would block expansive views afforded by the current landscape. The change in visual character would not be compatible with the existing rural residential setting. The overall visual impacts for residents with mid-ground views of the project would be moderate.

Key View C ([Figure 4-2](#))

This view is from Del Rio Country Club looking southwest towards the proposed bridge crossings along the Fredricks Road Alternative. The Del Rio Country Club golf course situated adjacent to SR-111 would share a similar view. Visual quality is considered moderate. However, the view includes a river basin, which adds a distinctive visual feature to the desert landscape.

Visual quality, with the implementation of the Fredricks Alternative, would be moderately low, and would result in a moderate change in the visual quality. The proposed bridge, spanning the New River, would require a large volume of fill within the river basin. Viewer groups within this area would consist of SR-111 motorists as well as employees and patrons of the golf course. Viewer response would be moderate due to the high number of viewers, low duration of view and actively engaged golf course patrons.

The project features would contrast with the existing rural residential setting. Given these factors, the overall visual impact would be moderate.

Key View D ([Figure 4-3](#))

This view is from the Del Rio Country Club golf course near Tee #17 looking south towards the proposed railroad overcrossing for the Fredricks Alternative. The existing visual quality is low. The low visual quality is the result of existing railroad tracks, commercial buildings, warehouses, storage facilities and utility poles within the viewshed. Expansive views are interrupted by these encroaching elements and the landscape lacks any distinctive features.

With implementation of the Fredricks Alternative, the change in visual quality would be low. A raised abutment over the railroad tracks, approximately 8-9 m (26-30 feet) in height, is being proposed. This new vertical element would add visual prominence to a primarily horizontal

landscape. Viewer response would be moderate given low viewer exposure and moderate duration. The changes in visual character would be low. The overall visual impact for this key view would be low.

Key View E ([Figure 4-4](#))

This view is from the Del Rio Country Club golf course Tee #7 looking towards the proposed Del Rio Alternative. The existing visual quality is moderate given the existing golf course and lack of cohesive visual patterns while the New River gorge offers a distinctive landscape feature. The change in visual quality would be moderate, and the resulting visual quality would be low with the implementation of the Del Rio Alternative. From this location the viewshed would include the elevated expressway and the proposed bridge crossing at the New River. Viewer groups would include SR-111 and Andre Road motorists and employees and patrons of the golf course. The Viewer response would be moderate due to the high number of viewers, low duration of the view and actively engaged golf course patrons. The proposed project features would contrast with the existing visual character of the viewshed. Given these factors the overall visual impact would be moderate.

Key View F ([Figure 4-5](#))

This mid-ground viewshed represents an impacted residence near the intersections of Best and Ward Roads. Existing visual quality is moderate. The expansive landscape and distant views are moderated by the lack of distinctive landscape features.

With the implementation of the Del Rio Alternative, the visual quality of this viewshed would be low and the change moderate. The proposed 8-9 m (26-30 ft) railroad over-crossing would create a visual barrier for this residence as well as limit the current views. The viewer response would be moderate due to low viewer exposure (1-2 residents and motorists on Best Road) and high duration.

The project would contrast with the existing rural setting. The resulting visual impact would be moderate.

Summary of Project Visual Impacts

Adverse visual impacts would result primarily from the physical barrier the proposed project would impose on the landscape. This includes blocked views, changes in land use patterns, bridges, highway appurtenances, removal or obstruction of existing vertical features in the landscape, the elevation of the roadway, abutment fills and alteration of the existing north-south rectilinear landscape patterns. Within this agricultural landscape setting the proposed project would contrast with the existing visual character.

For each alternative several trees would be removed. Approximately 10-20 trees would be removed with the Fredricks Alternative while less than 10 trees would be removed for the Del Rio and Del Rio North Alternatives. Trees serve as vertical landmarks in this flat landscape, and their loss would result in lower visual quality.

The proximity of the proposed project to residences with long duration views would also reduce visual quality. Proximity impacts would occur to two residents with foreground views of the expressway. Some local and primary roads would be cul-de-saced and have blocked sightlines as well. Additional visual intrusions such as signage, lighting or safety barriers would result in increased adverse impacts to viewers. The feasibility analysis has shown that constructing berms or walls within the project right-of-way would not present a reasonable solution to mitigate traffic noise impacts. In the event that noise mitigation is proposed on some impacted private property this would require further visual analysis. Both the Del Rio and Fredricks Alternatives present visual impacts to the Del Rio Country Club golf course. Any proposed noise barrier for the golf course would also require further visual analysis.

All three proposed alternatives would have visual impacts to the current viewsheds. The Del Rio North Alternative would impact a total of eight residences. The Del Rio Alternative also impacts eight residences, and the Del Rio Country Club golf course. The Fredricks Alternative would impact seven residences, the golf course and several industrial facilities.

Mitigation Measures

Caltrans and the FHWA mandate that a qualitative/aesthetic approach shall be taken to mitigate for visual quality loss in a project area. This approach fulfills the letter and the spirit of FHWA requirements because it addresses cumulative loss of visual quality that would occur in the project area subsequent to project implementation. It also presents mitigation that can more readily generate public acceptance.

All visual mitigation features shall be implemented with the Caltrans District 11 Landscape Architect's advice and consent.

The following mitigation measures would reduce the adverse impacts of this project.

Negative Views of the Project from Residences and Golf Course

Where the proposed project is located close to residences, a screen of tree plantings will be used for mitigation. A contractual agreement will be initiated by Caltrans to allocate funds for the installation of screen planting on private property. If this is not feasible, screen planting will be installed in Caltrans right-of-way and irrigated until established (one year minimum). Permanent irrigation will be installed if municipal water facilities are readily available.

Where the proposed project comes within view from the Del Rio Country Club golf course, an additional screen of tree plantings will be used for mitigation. If the Fredricks Alternative is constructed, the southern portion of the golf course will receive the tree plantings. If the Del Rio Alternative is constructed, the northern portion of the golf course will receive the tree plantings. A contractual agreement will be initiated by Caltrans to allocate funds to the golf course for the installation of screen planting on their property.

Land Form Alteration And View Blockage

Trees and other vertical elements currently serve as visual landmarks that provide orientation to the viewer in this wide expanse of flat topography. Tall trees such as palms or eucalyptus are to

be planted at proposed expressway intersections as a means of maintaining visual orientation for the viewer. This type of mitigation will be used at the project intersections of SR-78, SR-86, SR-111, Kalin Road, Brandt Road, Hovley Road and Best Road. Trees will be irrigated until established (one year minimum). Permanent irrigation will be installed if municipal water facilities are available.

Highway Appurtenances

Highway appurtenances such as traffic barriers, signage, and lighting will be compatible with the rural character of the region. Metal beam guardrails will be used instead of concrete barriers wherever possible, since it would be more visually consistent with a rural setting, and less prone to graffiti.

Railroad abutment slopes will be treated with colored concrete slope paving. Concrete slope paving will be architecturally enhanced with either texture, patterns and/or art relief in order to deter graffiti. Art relief is concrete texturing that possesses an artistic quality pleasing to the eye and uplifting to the spirit. These architectural features will be designed under the direction of the District Landscape Architect.

Proposed fill slopes for expressway will have a gradient of 2:1 or flatter. These slopes will be planted with seed to control erosion. Wherever right-of-way and resource conflicts do not occur, side slope gradients of 3:1 will be constructed. Techniques approved by the District Landscape Architect will be used for appropriate erosion control seeding.

Possible Noise Barriers

Although there are no noise barriers proposed at this time, constructing noise walls on residential private property may be considered in future on a case by case basis. These types of walls are a fairly common residential landscape feature in the Imperial Valley. If proposed, off-site walls will be architecturally enhanced and compatible with adjacent residences. They will be designed in consultation with the District Landscape Architect. Landscape screening will be included to prevent potential graffiti problems.

4.9 NOISE LEVELS

By the year 2020, with the No Build Alternative, traffic volumes are expected to increase 100 to 200 % on SR-111 as a direct result of NAFTA, GATT and general growth in the region. If the Project is "Built", all receptors along the three alternatives would experience varying degrees of impacts. For the Build Alternatives all 24 noise receptor sites would have Leq(h) levels ranging from 58 dBA to 69 dBA (see [Figure 3-16](#)). Receptors 1a, 1b, 2 and 22 are common to the three alternatives. Receptors 16, 17, 18 and 19 have existing noise levels of 68, 66, 53, and 58 dBA respectively and were selected to compare changes in the noise levels along SR-78/86 between the build and no-build alternatives. These receptors are expected to increase by 2 dBA with the build alternative and a 3 dBA increase is expected for the no build alternative.

Methodology (Existing And Future Noise Levels - Predicted)

"LEQV2" and "SOUND32", Caltrans noise prediction computer models for PC's were used to calculate the future traffic noise levels. "LEQV2" is Caltrans version of the FHWA Level 1 Highway Traffic Noise Prediction computer program SNAP1.0. "SOUND32" is Caltrans version of the FHWA Level 2 Highway Traffic Noise Prediction computer program "STAMINA1.0". The FHWA and Caltrans noise models are based on the FHWA report FHWA-RD-77-108, "FHWA HIGHWAY TRAFFIC NOISE PREDICTION MODEL". This method has been approved by the U.S. Department of Transportation as an acceptable method of predicting traffic noise levels.

The Caltrans traffic noise prediction models used in this traffic noise analysis, employ the California vehicle noise (Calveno) emission level curves to calculate the traffic noise levels. The Calveno emission level curves are reported in "Hendriks, R.W.; California Vehicle Noise Emission Levels, California Department of Transportation, Report No. FHWA/CA/TL-87/03, Final Report, January 1987." The Calveno emission level curves have been reviewed and approved by FHWA.

Existing and Future Noise Levels

The existing noise measurements within the project alternatives ranged from peak hourly Leq noise levels of 48 dBA to 68 dBA. The predominant noise sources are from farming activities and traffic noises from SR-78, SR-86 and SR-111. Growing traffic volumes on local roads are the main contributors to traffic noise in the city of Brawley.

To determine the existing noise levels at the receptors located in the area of the project, noise measurements were recorded at 13 different receptor sites during the peak traffic hours. In addition to these 13 sites, 13 other receptor sites were chosen for noise modeling to estimate the existing noise levels. Twenty-two of these 24 receptor sites represent residential units and two sites represent the Del Rio Country Club Golf Course. The receptors chosen for analysis were the closest to the proposed project, or the most exposed to the traffic noise in their area of the project. Tables 4-6, 4-7, and 4-8 below, show existing and predicted noise levels for selected receptors.

TABLE 4- 6

TABLE 4- 7

TABLE 4- 8

If the Project is "Built", Leq(h) levels would range from 58 dBA to 69 dBA.

Noise Impacts

When traffic noise impacts have been identified, noise abatement measures must be considered. Traffic noise impacts occur when one or more of the following occur: 1) a substantial noise increase; 2) predicted noise levels approach within 1 dBA or exceed the Noise Abatement Criteria (NAC). A noise increase is substantial when the predicted noise levels with the project exceed the existing noise levels by 12 dBA Leq(h) or more.

The "No Build" alternative would use the existing location of SR-78 through the city of Brawley. Increasing heavy truck traffic passing through the new Port of Entry (POE) would continue to use the local streets and roads. No barrier protection would be provided for the noise increases since mitigation is not required under the No-Build Alternative.

For all of the alternatives, there are no businesses with outside public use areas that would benefit from a reduced noise level.

Fredricks Road Alternatives

Variations 1 & 2 of this alternative each affect a total of ten receptors (1a, 1b, 2, 3, 4, 5, 6, 20, 21 and 22). Three receptors 1a, 1b and 2 would experience a 12 dBA or more increase, and none of

these receptors would approach or exceed the Noise Abatement Criteria (NAC) of 67 dBA (Table 4-6). Receptor 22 would experience a 3dBA decrease due to the shifting much of the traffic to the new alignment.

Del Rio Road Alternative

This alternative affects a total of twelve receptors (1a, 1b, 2, 8, 9, 10, 12, 13, 14a, 14b, 15 and 22). Six of these receptors (1a, 1b, 2, 9, 14a and 14b) would experience an increase of 12 dBA or more and two of these receptors (14a and 14b) would approach or exceed the NAC of 67 dBA (Table 4-7). Receptor 22 would experience a 3dBA decrease. Additionally this alternative would require purchasing of additional right-of-way (acquisition of receptor 7).

Del Rio North Alternative

This Alternative affects a total of ten receptors (1a, 1b, 2, 8, 12, 13, 14a, 14b, 15 and 22). Receptor 11 would be a full acquisition. Five of these receptors (1a, 1b, 2, 14a and 14b) would experience an increase in traffic noise levels of 12 decibels or more, and two of these receptors, receptors 14a and 14b would approach or exceed the NAC of 67 dBA (Table 4-8). Receptor 22 would experience a 3dBA decrease.

Noise Barrier Evaluation

Berms are less intrusive in a rural agricultural landscape and walls are considered only where berms are not feasible. A berm provides as much as 3 decibels more attenuation than a wall of the same height. Thus if a wall were to be as effective as a berm it would need to be 1.2-1.8 m (3.9-5.9 feet) higher than that berm.

All three-build alternatives are predicted to have some residential receptors with substantial traffic noises increases. In cases where there is not sufficient space to construct noise berms adjacent to the expressway or it is simply not feasible, noise walls are sometimes constructed on the private property close to the receptor. This type of mitigation is often referred to as on-premises mitigation and requires that legal agreements be made between the state and the property owner. Caltrans policy regarding this option is contained in section 5.5 of the Traffic Noise Protocol (October 1998).

Feasibility Analysis

Feasibility is defined as an engineering consideration. A minimum of a 5-dBA noise reduction must be achieved at the impacted receivers for the proposed noise abatement measure to be considered feasible. The feasibility criterion is not necessarily a noise abatement design goal. Greater noise reductions are encouraged if they can be reasonably achieved. Feasibility may be restricted by; (1) topography; (2) access requirements for driveways ramps, etc.; (3) the presence of local cross streets; (4) other noise sources in the area, and (5) safety considerations.

Receptors 1 – 15 and 20 - 22 were analyzed for the required abatement measures for construction in the State right-of-way. The analysis showed that the required sound berms or walls constructed in the expressway right-of-way would be of such length that they conflicted with existing public roads or railroad tracks. Since none of the proposed noise barriers would meet

the 5-dBA noise reduction without severe disruption to the existing transportation system, all berms constructed in the State right-of-way are considered to be not feasible.

Reasonable Analysis

The preliminary reasonableness determination is based on providing noise abatement for residential areas in activity category B. In accordance with the guidelines set forth in Section 2.8.2 and Section 2.8.3 of the Caltrans Traffic Noise Analysis Protocol dated October 1998, a cost allowance for each representative receptor is determined. The reasonable expenditure limit is dependent on the following: Absolute Noise Level (predicted future noise level without abatement), Build vs Existing Noise Levels (differences between alternatives for future traffic), Achievable Noise Reduction (mitigation measures must be noticeably effective), New Construction or predate 1978 (Project on New Alignments or Receptors older than 1978), Noise Abatement Cost vs Project Cost (the total cost of all reasonable mitigation must be less than or equal to 50% of the Project Cost without mitigation). None of the barriers that would be constructed within the State right-of-way were found to be feasible. The cost analysis is summarized in (Table 4-9 and 4-10) and shows that construction costs of noise barriers within the State right-of-way greatly exceed the allowable abatement cost. On site barriers were found to be much more reasonable, however they still exceed the reasonable allowance. Some receptors are very close to the reasonable allowance and are worthy of further study: if any walls are found to be reasonable prior to project completion of final design, then they would be included in the plans.

Noise Abatement Measures

This analysis shows that there are no feasible and or reasonable solutions for mitigating traffic noise by constructing berms or walls within the State right-of-way or on private property. The length of the berms or walls required to mitigate the traffic noise makes them either too costly (not reasonable) or they intersect existing roads and driveways and are therefore are not considered to be feasible (see Table 4-9 and 4-10). Onsite barriers for receptors 1a, 1b, 2 and 14a & 14b marginally exceed the reasonable allowance. During final design for the project a more detailed traffic noise analysis will be performed. A final decision on the installation of abatement measures will be made upon completion of the project design and the public involvement process.

TABLE 4-9

Brawley By Pass Noise Abatement Reasonable Analysis																	
Maximum Abatement Allowance Per Residence For Traffic Noise																	
Receptor No.	No. of Affected Residence	Base Cost	Existing Noise Level dBA (Existing)				Build Vs Existing Noise Levels dBA (Increase)				Achievable Noise Reduction dBA (AR)				New Construction or Predate 1978		Total Abatement Allowance
			≤ 69	70-74	75-78	>78	< 3	3-7	8-11	≥ 12	< 6	6-8	9-11	>12	Yes	No	
			\$15,000	\$2,000	\$4,000	\$6,000	\$8,000	\$0	\$2,000	\$4,000	\$6,000	\$0	\$2,000	\$4,000	\$6,000	\$10,000	
1a	1	X	X							X	X				X		\$33,000
1b	1	X	X							X	X				X		\$33,000
2	1	X	X							X		X			X		\$35,000
9	1	X	X							X	X				X		\$33,000
14a & b	2	X	X							X	X				X		\$66,000

TABLE 4-10

Brawley By Pass Traffic Noise Abatement Cost Summary									
			Abatement on Premises			Abatement on State R/W			
Alternative	Receptor	Allowable Abatement Cost	Wall Estimated Cost	Exceeds Allowable Abatement Costs		Wall Estimated Cost	Berm Estimated Cost	Exceeds Allowable Abatement Costs	
				Yes	No			Yes	No
All	1a	\$33,000	\$40,320	X		\$98,700	\$65,800	X	
All	1b	\$33,000	\$40,320	X		\$98,700	\$65,800	X	
All	2	\$35,000	\$35,800	X		\$455,700	\$303,800	X	
Del Rio Alt	9	\$33,000	Not Feasible	X		\$667,800	\$445,200	X	
All Del Rio Alt	14a & b	\$66,000	\$69,300	X		\$184,800	\$122,000	X	

4.10 AIR QUALITY IMPACTS

The project study area is in the Salton Sea Air Basin, which includes all of Imperial County and a portion of Riverside County. The Salton Sea Air Basin is a nonattainment area for both state and national standards for ozone and PM-10. The city of Brawley is located within a attainment area for the state carbon monoxide standard.

The project would redistribute vehicle trips in the region, resulting in an increase in average vehicle speeds. Higher vehicle speeds up to 55 miles per hour would result in lower carbon monoxide emissions. The net effect on regional emissions would likely be beneficial.

Long Term Air Quality Impacts

The proposed project would have both regional and local long-term effects. The regional effects stem from emissions of ozone precursors, while local effects result from emissions of carbon monoxide and PM-10. Ozone is considered a regional pollutant since it is not emitted directly from pollutant sources, but rather, is formed downwind from the original sources as part of the photochemical process. Carbon monoxide and PM-10, in contrast are considered local effects, since they are emitted directly by sources including autos and trucks. These pollutant sources can be found in relatively high concentrations, such as at congested intersections and along congested highway segments.

Local Emissions (Micro-scale Analysis)

The project would affect carbon monoxide concentrations due to its redistribution of traffic volumes in the vicinity. The project would divert traffic from the congested route through the city of Brawley, which would have the effect of reducing concentrations occurring there. Spatial and temporal distributions of vehicular traffic have proven to reduce CO levels.

According to the results from the CALINE 4 modeling, carbon monoxide concentrations resulting from the project would increase the concentration of carbon monoxide only 0.1 to 0.2 parts per million (ppm) and remain below the established numerical carbon monoxide standards. All decreases in project related levels would be the result of more efficient vehicles in the future, which according to the model, is based on past experience regarding the development and use of smog control devices. No adverse air quality impacts are expected as a result of the proposed project.

The long-term effects of project operations on PM-10 emissions are minor considering that the total on-road motor vehicle sources of PM-10 contribute approximately 5 % to the Imperial County Emission Inventory of the Salton Sea Air Basin.

Based on past ozone concentrations, noticeable impacts to crops adjacent to the proposed project are not anticipated. Particulate impacts from limited access expressway facilities are very low to adjacent properties. The land adjacent to the project intersections would show a higher level of uncontrolled diesel soot and dust. Considering the dusty nature of farm operations and the inherent dust in Imperial County, the project's particulate contribution would not be as noticeable as urban freeways where there is less dust.

Methodology

Air quality impacts of the “Build” and “No Build” project alternatives were evaluated using micro-scale dispersion modeling of carbon monoxide (CO) emissions in order to estimate changes in ambient CO concentrations. The numerical modeling at the project level is limited to CO, which is assumed to be a precursor for the other classes of pollutants. The analysis was performed for 33 sensitive receptor locations in the study area using the CALINE-4 model to calculate one-hour volumes and eight-hour levels of CO. Calculations were based on estimates for future, vehicle-type mix, appropriate emissions factors, and meteorological considerations. Receptor locations were chosen based on guidelines contained in Transportation Project-Level Carbon Monoxide Protocol (1998) and include residences, schools, hospitals, and a golf course. [Figure 3-17](#) shows the receptor location and alternative alignments.

The emission factors were predominantly based on factors derived from transportation activities in California. However, there was a need to factor in parameters for traffic originating from Baja California, Mexico. The year 1970 was chosen for the modeling because vehicles in 1970 were not required to contain smog control devices, which is the current case for vehicles originating from Mexico. There would be a mix of vehicles with and without smog controls. As such, the carbon monoxide levels estimates for 1970 traffic may be used as a worst case for 2020 and establishes an estimate for a range of carbon monoxide levels for 2020 should the project be built. Other parameters used in the model effort include emission factors for the year 2020 using strictly vehicles in substantial compliance with smog control device regulations. With regard to meteorology, CALINE-4 was run in “worst case” mode.

No Build Alternatives

Under the No Build scenario, congestion on local streets and highways would continue to worsen. Carbon Monoxide concentrations would increase at the sensitive receptor located at Pioneer Hospital.

Pm-10 Hot Spot Analysis

The project lies within Imperial County, which forms part of the Salton Sea Air Basin. Projects are only subject to hot spot analysis requirements for PM-10 if they are located in a PM-10 non attainment maintenance area (Federal Standards), for purposes of Transportation Conformity. Imperial County is in a PM-10 non attainment area for both state and federal standards.

PM-10 monitoring data shown in [Appendix G](#) shows that both State and Federal PM-10 24-hour standards are substantially exceeded at both the Calexico-Grant Street and Calexico-Ethel Street monitoring stations. The Brawley, Westmorland and Niland monitoring stations also exceed standards but at a lesser degree. However, it is important to note that at the El Centro-9th Street monitoring station, which is the nearest to a major freeway facility (Interstate 8) but the furthest from the International Border, exceedance of State standards for PM-10 are approximately 80% less than at the other two monitoring stations at or near the border. Also, at the El Centro monitoring station, Federal 24-hour PM-10 standards were not exceeded in three of the years from 1993 through 1997 and the annual average mean not exceeded in any of those years.

The project-level analysis contained in this document demonstrates that the "Build" scenario does not cause or contribute to any new localized PM₁₀ violations or increase the frequency and severity of any existing PM₁₀ violations. The PM₁₀ qualitative considerations indicate that none of the build alternatives would exceed federal or state standards or adversely impact any of the sensitive receptors evaluated. The assumptions used in the project-level analysis are consistent with the assumptions used in the regional emissions analysis. Therefore this project is found to be in conformity with the State Implementation Plan (SIP) and is consistent with the requirements of the federal transportation conformity rule.

Qualitative consideration was given to the proposed project's effect on existing and new PM-10 violations at the microscale level. Given the build alternatives' characteristics and location two to four miles north of the PM-10 monitoring station in Brawley as well as regional efforts and plans to attain the PM-10 standard, it is determined that the project would not worsen any existing PM-10 violation or create a new PM-10 violation.

The potential effect of a new roadway on regional emissions is a function of changes in vehicle trips, vehicle-miles-traveled, and vehicle speeds. The project would have little effect on the first two factors but likely would result in a beneficial impact on regional emissions due to its effect on average vehicle speeds and redistribution. It is expected that the project itself would not result in increased vehicle trips but rather would re-distribute those vehicle trips that would be generated in any event along the Route 111 or Route 7/98/11 corridors to I-8. Also, the project would not affect overall vehicle-miles-traveled since the distance between the junction of State Route 7 with State Route 98 and the junction of State Route 111 and Interstate 8 would be similar under project conditions as under current conditions. However, the average vehicle speeds during the peak period would be higher with the project because of the forecast reduction of traffic along the State Route 11 corridor. Higher average vehicle speeds up to approximately 55 miles per hour would result in lower emissions. Thus, the net effect on regional emissions would likely to be beneficial.

The long-term operational effects of the proposed project on PM₁₀ emissions are also considered minor, since the PM₁₀ contributions from on-road motor vehicle sources on one of the emission inventories conducted by the California Air Resources Board constitutes only 5 % of the Imperial County Emissions Inventory.

Conformity Determination

Conformity is a way to ensure that approval of federal funding is given to those transportation activities that are consistent with air quality goals. Under the Clean Air Act, the Metropolitan Planning Organizations must demonstrate, through the conformity process, that the transportation investments, strategies, and programs they choose are consistent with the goals contained in the applicable State Implementation Plan for achieving the National Ambient Air Quality Standards.

The Southern California Association of Government's (SCAG) regional emission analysis for conformity determinations in Imperial County is based on build/no-build tests of emission for PM-10 and ozone pollutants. The results indicate that the build scenario for the proposed project is better than the no-build for both PM-10 and ozone in the Imperial County non-attainment areas for year 2010 and 2020. The build scenario would decrease traffic congestion

and reduce air emissions, whereas under the no-build scenario these two factors would increase. The conformity decision is based on the latest planning assumptions.

The project-level analysis contained in this document demonstrates that the "Build" scenario does not cause or contribute to any new localized PM₁₀ or CO violations or increase the frequency and severity of any existing PM₁₀ or CO violations. The PM₁₀ and CO qualitative considerations indicate that none of the build alternatives would exceed federal or state standards or adversely impact any of the sensitive receptors evaluated. The assumptions used in the project-level analysis are consistent with the assumptions used in the regional emissions analysis. Therefore this project is found to be in conformity with the State Implementation Plan (SIP) and is consistent with the requirements of the federal transportation conformity rule.

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) made a conformity determination on the Southern California Association of Governments' (SCAG) 2000/2001-2005/2006 Regional Transportation Improvement Program (RTIP) on October 6, 2000, and the Regional Transportation Plan (RTP) on June 8, 1998. It is also included in the adopted 1997 Imperial County Transportation Plan. SCAG would need to have a new conformity finding by June 8, 2001. The regional emission analyses for Imperial County are based on the build/no-build test for both PM₁₀ and ozone. The design concept and scope of the proposed project has not changed from what is included in the RTP and TIP, therefore it comes from a conforming transportation plan and program.

Short-Term impacts to air quality are discussed in Section 4.15.2

Measures to Minimize Harm during Facility Operation

The effect of the project on regional emissions would likely be beneficial. Constructing the new roadway in such a way to minimize dust originating from the shoulders and median could enhance this beneficial effect. The project proposes to pave the 3 m (10 ft) outside shoulders and the 1.5 m (5 ft) inside shoulders unless the median is paved or landscaped.

4.11 HYDROLOGY AND WATER QUALITY

Minor, short-term, adverse impacts to fresh water in canals could potentially occur during canal relocation and reconstruction, however no substantial effect on water quality or beneficial uses of surface waters or ground water of Imperial Valley are expected as a result of project construction and long-term facility operation. The proposed roadway would be designed to drain away from fresh water supply canals. No inconsistencies with Federal, State or local water quality standards or Clean Water Act requirements are anticipated. The proposed project (both construction and operation) would not violate any State-adopted or EPA-approved water quality standards, nor would it impair any protected uses for the Salton Sea or any other surface or groundwater affected by the project.

Long Term Impacts of Project Alternatives

Adverse impacts to water quality may occur from increased road surface runoff. During long-term operation, small quantities of oil and grease, metals, and/or suspended solids could be transported by storm water runoff into the drainage systems and subsequently into the New River

at the new crossings. Storm water runoff may actually serve to dilute already high pollutant levels of surface drains.

Farmland converted by the project to non-farm uses would no longer accumulate agricultural chemicals. Therefore, there would be a reduction in pollutants contributing to surface runoff.

Accidental toxic spills on the highway and cumulative impacts (runoff from adjacent developments) would add to pollutant loads. The Colorado River basin historically has the driest climate in California, and the drainage area of each project alternative is less than 1% of the total drainage area to the New River. Potential pollutant loading from the project via storm water runoff is considered minimal.

Surface Waters

During long-term operation, accidental spills and/or leaks from motor vehicles could potentially impact the water quality and beneficial uses of surface waters in the vicinity of each “build” alternative. Pollutants that are carried by storm water runoff into surface waters may potentially impact downstream beneficial uses.

The proposed project would not generate any long-term impacts to water quality or beneficial uses of Imperial Irrigation District (IID) canals. Project generated runoff would be directed away from IID canals. Typically, IID canals are constructed above grade and bermed to prohibit any introduction of surface runoff.

Groundwater

Long-term operation of the project would generate similar potential impacts to water quality and beneficial uses of groundwater as those discussed under Short Term Impacts, below. No substantial long-term impacts are expected.

Short Term Impacts of Project Alternatives

Minor short-term adverse impacts to fresh water in canals could potentially occur during canal relocation and reconstruction.

Surface Waters

Soil disturbance during excavation and grading could potentially introduce dust, sediment and debris into surface waters near construction sites. The transport of dust, sediment and debris into surface waters would be more likely during storm events than during dry weather. Wind could also be a factor.

Storage, maintenance and refueling of vehicles and equipment at construction staging areas could potentially introduce oil and grease, petroleum products, or other chemicals into surface waters that already have high agricultural pollutant loads.

During phases of construction, localized, temporary dewatering of groundwater may be required. Dewatering may result in accidental spills or discharges of groundwater with elevated total dissolved solids (TDS) and total suspended solids (TSS) concentrations into surface waters.

Segment relocations of several IID canals and /or drains may be required for each of the project alternatives. Limited introduction of dust, sediments, debris, construction materials, or chemicals into the existing segments of the relocated IID drains and canals is expected during the construction period.

Construction of new storm water drains for roadway runoff between SR-78 and SR-111 would drain directly to the New River.

Groundwater

Shallow groundwater within the project area may be susceptible to accidental minor spills or leaks from construction vehicles, equipment and materials. This could result in the introduction of oil and greases, diesel, gasoline, paint, solvents, or other chemicals into the groundwater. However, the existing groundwater quality in the vicinity of the project area alternative is considered poor and unusable for agriculture or municipal purposes. Beneficial uses of groundwater in the vicinity of each project alternative are limited to industrial applications, which are not dependent on water quality.

No Build Alternative

Minor runoff and canal construction impacts from the project would not occur. Storm water runoff from paved surfaces of SR-78, SR-111, and the local road network would carry similar quantities of pollutants as the proposed project and the discharge locations would not change. Operating levels of service on SR-78 and SR-111 would continue to worsen with a higher probability of accidental spills on these roads. No short term/ construction impacts to existing water quality would occur.

Mitigation Measures

Caltrans routinely uses a number of standard specifications and requirements related to water quality for roadway development projects, including storm water pollution prevention guidelines, environmental assessment guidelines, and procedures for conducting water quality technical assessments and estimating highway runoff quality. In addition, Caltrans has recently been issued an approved National Pollution Discharge Elimination System (NPDES) Storm Water Permit by the DWQ (NPDES ORDER 99-06 CAS 000003). Permit conditions include adoption of a Storm Water Management Plan (SWMP), completed by Caltrans on December 31, 1997. Caltrans has also formulated a series of Storm Water Quality Handbooks, which provide guidelines for planning, design, construction, and maintenance activities as they relate to storm water quality management. In accordance with this guidance, preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) would be necessary. Because more than 2 ha (5 acres) of ground disturbance would occur during construction, an NPDES permit would be required from the State Regional Water Quality Control Board (RWQCB). This permit requires the construction contractor to prepare a SWPPP prior to construction activities. These controls would substantially reduce or eliminate excavation and grading impacts, as well as the

potential for minor spills and leaks associated with equipment maintenance and operations and materials storage.

The Handbooks also contain a "Decision Tree" process whereby Caltrans staff identifies applicable water quality controls based on site-specific project design and location characteristics (e.g., local drainage, soils and environmental conditions). Accordingly, while example water quality control measures are identified for individual issues, these measures would be subject to refinement and/or expansion through the design process.

Long-term operational impacts will be minimized through the use of regular facility maintenance procedures and practices such as regular facility monitoring, litter control, pavement management, and proper management of herbicide and fertilizer applications. A HAZMAT response team maintained by the Brawley Fire Department is available to clean toxic spills on roadways. The team operates from a station located in the city of Brawley. In addition, Caltrans Maintenance has an on-call contractor that can be mobilized to clean accidental spills.

Caltrans standard specifications and requirements for construction would minimize water quality impacts. They include measures such as implementing and maintaining best management practices (BMP's), employee/ contractor education, identifying and handling hazardous materials and appropriate maintenance and monitoring activities. These measures would allow project conformance with applicable Colorado River Basin Plan water quality objectives and beneficial uses. Specific measures that will be considered for the proposed project include use of landscaping and mulching, proper manufactured slope design, use of sediment containment structures (such as straw bales or silt fences), drainage outlet protection, use of retention and/or sediment basins, and "good housekeeping" (e.g., proper vehicle storage, cleaning and maintenance practices). Soil stabilization measures will be considered, such as soil blankets, fiber rolls, geotextile mats and rock slope protection. These standard measures will be implemented if necessary, at appropriate locations, and will preclude runoff discharge and sedimentation into canals or the New River, to the maximum extent feasible.

Dewatering

Any potential impacts relative to the disposal of extracted groundwater would be effectively avoided or mitigated through conformance with the standard specifications. Caltrans will secure appropriate dewatering permits from the RWQCB and perform any necessary monitoring for temporary, short-term dewatering required during construction. RWQCB requirements prohibit the discharge of wastewater that would increase the TDS content of receiving waters unless it can be demonstrated that the increase would not adversely affect beneficial uses of receiving waters. The anticipated dewatering volumes shall be identified and the impacts addressed during the design phase of the project. The selected method of dewatering and disposal/ discharge of groundwater shall be reviewed and approved by the RWQCB prior to commencement of construction. Dewatering and disposal/ discharge of groundwater shall be compatible with requirements to provide necessary agricultural drainage.

Conclusion

All project impacts from construction-related erosion and sedimentation as well as facility operation would be effectively avoided or minimized through implementation of the Caltrans

SWMP, the Storm Water Quality Handbooks, the Contractors Guide and Specifications, and the use of applicable BMP's. Conformance with the NPDES permit and the above guidelines would ensure that Basin Plan water quality standards are met and that existing beneficial uses would continue unimpaired.

4.12 FLOODPLAIN IMPACTS

4.12.1 Summary of Location Hydraulic Study

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 CFR 650 Subpart A.

The 100-year Floodplain is defined as “the area subject to flooding by the flood or tide having a 1% change of being exceeded in any given year”. An encroachment is defined as “an action within the limits of the 100-year Floodplain.”

All of the build alternatives would encroach the 100-year floodplain of the New River. All alternatives cross the New River in a transverse orientation with approximate bridge lengths ranging from 71.5 m (235 ft) to 100 m (328 ft), depending on the alternative. Since the floodplain width ranges from 260 m (850 ft) to 690 m (2260 ft) at these locations it would not be feasible to construct the bridges to span across the entire floodplain. Therefore, fill slopes and bridge piers for each expressway alternative would encroach upon the 100-year floodplain. The approximate areas of encroachment for the Fredricks Alternative (Variation 1 and 2) would be 4.4 ha (11 ac); for the Del Rio Alternative, 4.6 ha (11.5 ac); and for the Del Rio North Alternative, 8.3 ha (20.5 ac). (see [Figure 3-18](#)).

Floodplain impacts have been minimized for the project due to the transverse crossings and the avoidance of longitudinal encroachments. The proposed impacts to the floodplain for each alternative would be such that the water surface elevation upstream from the bridge crossings would not increase more than 0.30 meters (1 foot). Any alternative showing a water surface elevation increase of more than 0.30 meters (1 foot) in preliminary hydraulic studies would be mitigated by redesigning the bridge lengths, thereby reducing the water surface elevation increase to less than 0.30 meters (1 foot). Should this be done, floodplain impacts will be reduced since less fill will be used in the floodplain. The proposed project would have a low risk level based on the assessment that there is no measurable increase in the potential for disruption of services or of flood-related costs or damages. Considering the above, the floodplain encroachment for all alternatives is not considered to be an area of concern.

Floodplain evaluations and hydraulic locations studies were prepared for each location of 100-year Floodplain encroachment; these are on file in the Caltrans District office.

4.12.2 Impacts on Natural and Beneficial Floodplain Values

Direct physical effects of the project on the 100-year Floodplain at the New River crossing locations would be limited to temporary construction impacts and the permanent, but not substantial, effects of the placement of supporting piers in the 100-year Floodplain. In addition

to similar effects from supporting piers, there would be transverse placement of fill in the 100-year Floodplain.

Biological resources in the area of the crossings would be temporarily affected by construction. Precast concrete bridge sections are proposed. This measure would help minimize disturbance of the river valleys and 100-year Floodplains and consequently reduce impacts on biological resources. If falsework is required, it would have greater biological resource impacts, than the precast methods.

Bridges have been designed to allow for wildlife movement. Nevertheless, the height and width of the structures above the 100-year Floodplain may present a physical constraint on wildlife movement within the 100-year Floodplain. The proposed bridge structures, at the river crossings, for all of the alternatives would cause shading impacts to the New River. Highway bridges can adversely affect vegetation and sensitive wildlife immediately below them by blocking sunlight

4.12.3 Support of Probable Incompatible Floodplain Development

Currently, much of the 100-year Floodplain is in agriculture or undeveloped open space and is expected to remain in similar use. The project would not support incompatible 100-year Floodplain development. None of the project alternatives would provide new access or direct access to the New River 100-year Floodplain. The expressway is a controlled access facility and would cross the 100-year Floodplain with structures and fill embankments well above the elevation of the 100-year Floodplain.

All of the project alternatives cross the New River 100-year Floodplain within the unincorporated portion of Imperial County and within the Sphere of Influence planning boundary for the city of Brawley. In the Imperial County Land Use Plan, the 100-year Floodplain area for all alternatives is either designated agricultural or part of the Brawley Urban Area. In the city of Brawley General Plan, the 100-year Floodplain area near the project alternatives is designated either open space or agricultural with the exception of the existing sewage treatment plant. Both the Imperial County and city of Brawley General Plans specifically identify the goal of preserving the 100-year Floodplain as open space. If the local agencies were to allow incompatible development within the New River 100-year Floodplain, they would be at risk of losing FEMA insurance.

4.12.4 Measures to Minimize Floodplain Impacts

The design of the river crossings would result in only minimal effects on the 100-year Floodplain. Routine construction procedures would minimize impacts during construction. These procedures include limiting the area affected by construction to minimum necessary, using barriers or fences to protect sensitive areas, employing best management practices to control erosion and runoff, and designating and restricting access to designated Environmentally Sensitive Areas (ESAs) where appropriate. Vegetation clearing should be done outside of bird breeding season. It may be possible that physical disturbance of the 100-year Floodplain will be minimized by constructing sections of the bridges elsewhere, transporting them to site, and

placing them, rather than by building forms and falsework, casting sections, and removing forms on-site. No additional measures to minimize impacts are required.

4.12.5 Measures to Restore and Preserve the Natural and Beneficial Floodplain Values Impacted

The following mitigation measures for impacts to natural and beneficial 100-year Floodplain values from the project have been identified and are discussed at greater length in topical sections of the Environmental Impact Statement/Environmental Impact Report and in supporting technical documents prepared for the project.

Biological Resources

River crossings at all alternative locations would require 1) a streambed alteration agreements with the California Department of Fish and Game (pursuant to Section 1601 et seq. of the State Fish and Game Code) and 2) a permit for placement of fill in waters of the United States from the U.S. Army Corps of Engineers (pursuant to Section 404 of the Federal Clean Water Act). +Construction impacts would be minimized by employing Caltrans requirements for standard construction practices, designating Environmentally Sensitive Areas (which are subject to avoidance and monitoring), revegetating all temporarily disturbed areas, and replacing or restoring permanently impacted habitat at a ratio which insures no net loss of habitat value.

4.13 GEOLOGIC, SOILS, AND SEISMIC IMPACTS

The assessment of potential soils and seismic impacts and recommendations for mitigation are derived from the Preliminary Geotechnical Report. This report was prepared based upon air-photo interpretation, site reconnaissance, and review of existing documentation.

Slope Stability

The selected alternative would be constructed on fill material. Cut and fill heights would be at a maximum at the New River crossing. To enhance the stability of manufactured embankments, slopes would be constructed at a ratio of 1:2 (vertical : horizontal).

Erosion-Siltation

The project area is extremely flat and generally experiences little natural erosion. The project would introduce fill slopes that would be subject to erosion from roadway storm water runoff and wind. Concentrated runoff may erode gullies in unprotected embankments. Sheet flow may cause shallow furrows to develop. Locations with less fill surface would have lower erosion potential. The low rainfall amounts in the Imperial Valley would help to minimize the potential for soil erosion.

Mitigation Measures

At locations where extensive slope surfaces will be exposed, slopes will be treated with a soil stabilizing technique approved by the Caltrans Geologist to minimize soil erosion from wind and water. Appropriate erosion control seeding will be applied between the months of November

and February to stabilize soil surfaces as recommended by the Caltrans District Landscape Architect.

For all build alternatives, a minimum embankment height of 1.2 m (4 ft) is needed for the expressway to provide an adequate drainage system for the project since the majority of the natural ground surface is extremely flat. Maximum embankment heights of approximately 11 m (36 ft) to 13 m (43 ft) will be needed for the construction of the proposed bridge structures for all of the alternatives. Small areas of cut slopes are needed for two of the three build alternatives in the area of the river crossings.

Seismicity

All of the build alternatives encroach on alluvial soils that are potentially liquifiable during a seismic event. The Imperial Valley fault, an active fault in the area, is shown on [Figure 3-18](#). All of the proposed alternatives would potentially be affected by the Imperial Valley fault or branches thereof. Differential settlement and displacement that may be expected to occur due to soil liquefaction could result in roadway, bridge crossings, and structure damage. Other areas susceptible to liquefaction and land spreading are along drainages ways and canals, where roadways will cross these facilities. Water retention basins for storm water runoff that may be constructed near the roadway also present a free surface for land spreading to potentially occur.

Mitigation Measures

Caltrans will incorporate standard design and construction measures in the expressway design to address seismic risk. Locally excavated material and imported material approved by Caltrans from material sites selected by the construction contractor would be used for the road base and embankments. All environmental approvals and permits for imported fill would be the responsibility of the construction contractor.

Embankments slopes will be constructed at a ratio of 1:2 (vertical: horizontal) to enhance slope stability. Drainage crossings would utilize reinforced concrete box culverts and pipe culverts depending upon hydraulic and design considerations. Appropriate measures would be incorporated in the design of concrete facilities to address soil corrosiveness.

The potential for liquefaction and land spreading due to seismic activity would be addressed through a separate geotechnical investigation of the selected alternative during the design phase of the project. These reports will be prepared during the design phase of the project, and recommendations will be based on subsurface exploration, laboratory testing, and engineering analysis. Activities associated with a geotechnical investigation would not generate additional noise impacts through extensive excavation or drilling.

4.14 HISTORIC, ARCHAEOLOGICAL, AND PALEONTOLOGICAL RESOURCES

The project would not impact any historic, archaeological, or paleontological resources in the study area.

On April 16, 1999, the State Historic Preservation Officer (SHPO) concurred with the FHWA determination that: 1) the studies to date have been adequate; 2) no cultural resources that are

eligible or potentially eligible for inclusion on the National Register of Historic Places are located within the Area of Potential Effects (proposed right-of-way). The SHPO letter is reproduced in [Appendix E](#).

4.15 HAZARDOUS WASTE IMPACTS

An Initial Site Assessment was performed by Caltrans to evaluate whether any potential hazardous waste sites were present within the project study area. A review was made of historical records and regulatory lists, including federal and state databases, and a visual search of all build alternatives was completed to identify anything not available in the records search. A review of the Del Rio and the Del Rio North Alternatives indicated they have no direct hazardous waste involvement.

On the Fredrick's Alternative, there is a parcel, Site A, within the proposed right-of-way footprint that has both aboveground and underground fuel storage tanks (see [Figure 3-1D](#)). The piping to the dispensers for both tanks is underground and is about 91 m (300 ft) in length. The piping at the storage tank leaks diesel into a pail with visible soil staining. A Preliminary Site Investigation was conducted at this property. Results show considerable contamination of both gasoline and diesel fuels.

A site investigation on Site B, the other potentially hazardous site within the Fredricks Alternative footprint, revealed two abandoned cars and six abandoned 55-gallon drums with their unknown contents dumped. Due to the dumped drums, testing was done for a wide variety of chemicals and contaminants. Some minor pesticide contamination was found, but none that exceeded the TTL (Total Threshold Limit of Concentration) of DDE and DDT. The results at this site exhibit normal background levels for an agricultural area.

Mitigation Measures

If the Fredricks Road Alternative is chosen and the Site A property with the aboveground and underground fuel storage tanks, the Caltrans Hazardous Waste Coordinator would arrange for a Detailed Site Investigation to be conducted to verify the extent of the hazardous waste at the site. Before acquisition of any property having apparent hazardous waste involvement, Caltrans would require the current owner to remediate the property of the hazardous waste, including any superficial soil stains. If the owner does not remediate the contamination, further assessment and remediation would be performed using a minor contract. This process would not be expected to delay the project delivery schedule. Based on the data collected during the site investigation the Caltrans Hazardous Waste Staff has estimated that it would cost \$450,000 to clean up this site.

All three alternatives would cross the New River, which is contaminated. Future contractors at the three alternative locations should take special health and safety considerations. Worker access to waters of the New River will be restricted by snow fencing, which will be used to define the boundaries of the Biological Environmental Sensitive Area (ESA). Appropriate "CAUTION" signage will be posted at the New River construction areas to advise workers. The contractor will be required to prepare a Health and Safety Plan for proposed work to stay out of the area along the New River.

Caltrans standard specifications and requirements will be followed regarding hazardous materials. Grading and construction activities will be monitored to identify such materials. If unexpected hazardous materials are discovered during construction, the resident engineer will halt work in the area of concern, flag the area, and notify the Caltrans District Hazardous Waste Coordinator. When appropriate, the Coordinator will initiate the District's hazardous materials program to notify a HAZMAT team in the region, arrange for waste sampling and identification, and follow established procedures for cleanup. Best Management Practices will be followed. This will include measures to avoid or minimize the potential influx of contaminants into local runoff and surface waters. Such measures may include the use of vegetation-lined retention drainages.

Dewatering will be required for the construction of the CISS piles at the New River Bridge. Groundwater that has been tested in this area has been determined to be slightly contaminated but much less contaminated than the New River itself. The previous permits from this area have been granted in order to dispose of these waters into the New River. An appropriate Health and Safety Plan will have to be completed by the Contractor to ensure the health and safety of the construction workers.

4.16 CONSTRUCTION IMPACTS

Construction activities for the project would cause temporary impacts with respect to air quality, noise levels, erosion/ water quality, and access/ traffic circulation. These impacts would not be substantial. For air and noise, the number of sensitive receptors near the construction zone is small. The proposed project would interfere with local traffic causing some delays and occasionally disrupting access. Detours would ensure traffic would continue to flow. Fire and safety service providers, and local businesses, would therefore not experience substantial impacts. The duration of the construction period would be approximately 36 months for all build alternatives.

4.16.1 Biological Resources

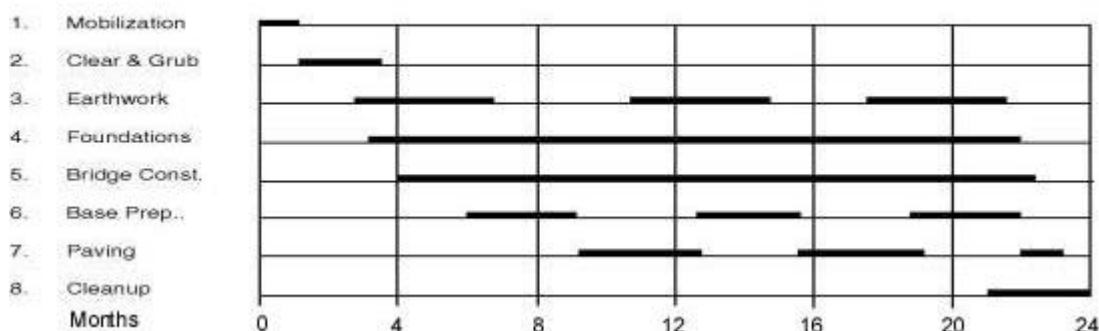
Indirect impacts to the Yuma clapper rail may result during construction of the Fredricks Alternative. Indirect impacts may include construction noise, increase in dust and debris, non-natural lighting, and visual perception of construction. If it is determined that the proposed Fredricks Alternative is likely to adversely affect the endangered Yuma clapper rail, the Federal Highway Administration will conduct formal consultation with the USFWS, pursuant to Section 7 of the Endangered Species Act.

All vegetation clearing within the construction zone would occur outside of the breeding season (March 1 to July 31) to avoid impacts to migratory birds and raptors nesting within the project area. If this is not possible, a preconstruction survey would be done to ensure that birds are not nesting in any of the vegetation to be cleared. If birds are nesting, the nest and tree must be designated an Environmentally Sensitive Area and no construction shall occur within a radius of 50 m (164 ft) until nesting is complete.

To reduce impacts to the burrowing owl, a construction window would be established to avoid any work during the breeding season (February 1 to August 31). Further details are provided under Species of Concern ([Section 4.7.4.](#)).

4.16.2 Construction Impacts: Noise and Air Quality**Construction Noise**

Noise produced by construction equipment on this project would occur with varying intensities and durations during the eight basic phases of construction. These construction phases would occur over an estimated 24-month period. Table 4-11 shown below is a typical "flow chart" that shows a rough approximation of the time required for each construction phase. Some locations could receive noise for long periods. The Noise Study discusses construction noise in detail, and provides a rough approximation of the construction noise level for various pieces of construction equipment. The range of noise emissions is provided from various types of construction equipment at a distance of 15 m (49 ft).

TABLE 4 -11TYPICAL CONSTRUCTION FLOW CHART

The short-term construction equipment noise impacts are estimated by comparing the existing noise levels with the estimated peak noise levels that is produced by various types construction equipment. [Table 4-12](#) shows the existing measured and estimated peak construction noise levels at each of the receptor sites. The peak construction noise levels would occur between the hours of 0600-1800.

Although blasting is not anticipated to occur on this project, pile driving may be required.

Construction Noise Control

The following construction noise control measures will be implemented:

1. Minimize night time and weekend work.
2. Place maintenance yards, batch plants, haul roads, and other construction-oriented operations in locations that would be the least disruptive to the community.
3. Hold community meetings to explain to the area residents about the construction work, time involved, and the control measures to be taken to reduce the impact of the construction work.
4. Avoid pile driving at night and weekend.
5. Use of portable noise screens to provide shielding for jack hammering or other similar type activities when work is close to noise-sensitive areas.
6. Compliance with Standard Specifications 7-1.01I (January 1999) "Sound Control Requirements." - The contractor shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.

TABLE 4- 12**Construction Noise at Receptors ^[1]**

Receptor	Present Land Use	Existing Peak Noise Levels (Range) ^[2]	Predicted Peak Construction Noise Levels (Range) ^[3]
(1A)	Residential	45-52	80-84
(1B)	Residential	45-52	78-82
(2)	Residential	45-52	70-76
(3)	Golf Course	52-60	68-74
(4)	Residential	45-52	70-77
(5)	Residential	45-52	70-75
(6)	Residential	59-67	87-93
(7)	Residential / Business	50-65	60-66
(8)	Residential	65-80	67-73
(9)	Golf Course	45-52	67-73
(10)	Residential	60-73	72-78
(11)	Residential	45-80	77-83
(12)	Residential	50-65	68-75
(13)	Residential	45-65	68-74
(14a)	Residential	45-65-	68-74
(14b)	Residential	45-65	83-89
(15)	Residential	45-65	65-70
(16)	Residential	65-75	No Construction
(17)	Residential	66-75	No Construction
(18)	Residential	53-67	No Construction
(19)	Residential	58-67	No Construction
(20)	Residential	60-85	84-88
(21)	Residential	61-85	83-87
(22)	Residential	68-85	77-83

[1] Peak Noise Levels in dBA.

[2] Peak noise levels taken between 0600 and 1800 hours.

[3] Values shown are based on a 6-dBA drop-off rate per doubling of distance for a single point noise source. Values represent a free-field situation (no attenuation provided from any natural barriers - such as edge of fill)

Construction Air Quality Impacts

Project construction would generate exhaust emissions and fugitive emissions during construction. There would be a temporary increase in emissions of criteria air pollutants, principally fugitive dust (PM-10) from grading activities and nitrogen oxides from operation of heavy-duty diesel construction equipment.

Fugitive dust emissions would result from on-road construction-related traffic, vehicles required to handle the imports, and export of aggregate materials, and vehicles and heavy equipment required to lay down the foundation for pavement of the roadway. Exhaust emissions during construction would result from vehicular traffic generated by the construction activities and from construction equipment and machinery. Paving activities would be a source of fugitive volatile organic compounds (VOC) emissions.

Emissions from construction activities would vary widely with the type of equipment, duration of use, operation schedules and number of construction workers.

Measures to Minimize Harm in the Construction Phase

The following measures will be implemented to reduce fugitive dust emissions during construction:

- Water all active construction areas at least twice daily (using non-potable water where feasible).
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 6 meters (2 feet) of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).
- Apply water three times daily on all active unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep daily (preferably with water sweepers) all paved access roads, parking areas, and staging areas at construction sites, if visible soil material is present.
- Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply water to inactive construction areas (previously-graded areas inactive for ten days or more).
- Enclose, cover, and water twice daily to exposed stockpiles (dirt, sand, etc.).
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roads.
- Revegetate disturbed areas as quickly as possible.

The above measures would be expected to reduce uncontrolled fugitive dust and associated PM-10 emissions by 75%.

4.16.3 Construction Impacts: Access-Traffic Circulation

The majority of work would be done within Caltrans right-of-way. During construction, access would be provided to all affected properties. Minor detours and traffic control during construction would be required where the proposed expressway intersects existing state routes and county roads. The relocation of public utilities would be coordinated so that service interruptions would be minimized.

An evaluation of the impact of construction activities on traffic conditions within the project area revealed that no significant delays would be imposed on local traffic. The existing local road network provides sufficient alternate routes for local access in and out of the project area. A Traffic Management Plan (TMP) would be needed for the coordination of activities with locals, to establish a community outreach plan, and to address minor detours and closures. Therefore, funds would be included for a TMP for each of the alternatives.

The Fredricks Alternative, Variation 1, would require a temporary detour of existing SR-111 during construction. The detour, approximately 900 m (2952 ft) in length, would be constructed on the west side of existing SR-111, in the area of Shank Road. This detour operation would include temporary access connections to adjacent parcels. The duration of the proposed detour is estimated to be 12 months.

The Del Rio North Alternative would require a temporary closure of Best Road. Approximately 4.8 km (2.9 miles) of Best Road would be closed to through traffic in order to construct the proposed expressway at-grade intersection at Best Road. It is anticipated that through traffic would be re-routed approximately 1.6 km (1 mile) west to SR-111, which parallels Best Road. Detour signs would be placed at Shank Road, which is located south of the construction area, and Rutherford Road, which is located north of the construction area. The duration of the proposed detour is estimated to be six months.

All alternatives would require the removal of a future temporary connection at the southern end of this proposed project, where it connects to the SR-111 expressway project. The temporary connection, approximately 800 m (2624 ft) in length, would be constructed as part of the SR-111 expressway project. It would temporarily divert the traffic from the SR-111 expressway to the existing SR-111 roadway until the completion of this proposed project. Current project schedules reveal that this temporary connection would be in place for approximately four years. No construction staging is proposed for this project at this time. Planning during the design phase would ensure that construction activities are properly coordinated to improve construction operations and minimize traffic disruption.

4.17 CUMULATIVE

Both CEQA and NEPA require the analysis of cumulative impacts. The Council on Environmental Quality's (CEQ) regulations (40 CFR Sections 1500-1508) implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC Sections 4321 et seq.), define cumulative effects as the impact on the environment

which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR Section 1508.7). Per CEQA Section 15355, “cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” Although a project may have only minor or incremental impacts, when its impacts are considered with impacts from closely related past, present and reasonably foreseeable future projects, the overall cumulative impacts may be adverse.

Various development projects are proposed in the Brawley area. Table 4-13 illustrates the cumulative impacts of non-highway development projects in and near Brawley.

TABLE 4-13

Name	Location	Property Size	Proposed Uses	Status
Luckey Ranch Annexation	City of Brawley	283 ha (700 acres)	42 ha (103 acres) - Light Industrial 31 ha (77 acres) - Industrial (13 ha) 33 acres – Commercial 84 ha (207 acres) – Residential *Increase in population Phase One – 4,500 Maximum Build out – 15,000	Approved
Subdivision on C Street	City of Brawley	3 ha (8 acres)	Residential	Approved
Meat Packing Plant	City of Brawley	100 acre parcel; 330,000 sq.ft. building	Light Industrial * will create approximately 600 jobs	Approved; In construction
Sewage Treatment Plant	City of Brawley	Remodeling within existing footprint	Industrial	Approved
County Services Expansion	City of Brawley	Occupying existing building	Commercial * will create approximately 40-60 new jobs	Approved
Pioneers Memorial Hospital Expansion	City of Brawley	Unknown	Commercial	Not yet approved

Natural Environment/Biological Resources

Cumulative impacts to the natural environment result from past incremental impacts, current project impacts, and future conversion of native habitat to agriculture and urban development. Various highway projects are planned to provide access from the US/Mexican border to I-10 in Riverside County. These improvements are needed to provide a facility which is adequate to meet traffic demand on the designated International Border Trade Corridor in Imperial County.

Highway projects designated as Near-Term Projects in the Imperial County Transportation Plan Highway Element are shown in Chapter 1 (see [Figure 1-3](#)).

Most of the area surrounding this project has been developed for either agricultural or urban use. While this development has already eliminated the majority of native plants, it has not prevented use by some wildlife. Adverse impacts resulting from the Brawley Bypass and other related projects could include an increase in urban development throughout the surrounding agricultural areas. As urban development replaces agriculture in the area, many of the species that currently use the agricultural fields and drains would be forced out. Development may also extend out into remaining native areas.

Farmland

Cumulative farmland impacts are associated with conversion of farmland by other highway projects and large scale land development projects. The following is a list of major Caltrans projects that have been constructed in the last ten years or are planned to be constructed in the next 10 years within the Imperial Valley MLRA.

TABLE 4- 14

• SR-86 Westmorland to SR-78	152 ha (375 acres)	constructed
• SR-86 Westmorland to Brawley	45 ha (110 acres)	constructed
• SR-86 Riverside County	372 ha (920 acres)	
• SR-111 Ross Road to near Brawley	140 ha (345 acres)	
• SR-111 Ross Road additions	49 ha (120 acres)	
• SR-7 POE to SR-98	35 ha (87 acres)	constructed
• SR-7 SR-98 to I-8	120 ha (295 acres)	
• SR-78/111 Brawley Bypass	162 ha (400 acres)	

The total direct impacts from Caltrans' projects is over 1012 ha (2500 acres). Impacts from known projects by others and potential induced growth would add to this total. The acreage figures provided above include non-farmable remnants (indirect impacts in the immediate location). Of the 372 ha (920 acres) of farmland impacted on SR-86 Riverside County, 94 ha (232 acres) were under active farming/irrigation. Most of the land held the potential for farming and several high intensity agricultural operations were impacted.

Of these projects, the SR-86 Riverside County, SR-7 and SR-78/111 projects are located on completely new alignments. A new highway alignment causes many additional agricultural operational impacts. These impacts include the bisection of fields, impacts beyond the direct project footprint to irrigation and drain systems, new farm access roads and ease of operation due to the limited access nature of the facility. Further, these new highway locations have the potential to foster land development associated with the new highway access. New development would add to the cumulative loss of farmland. Given the quality of unique farmland productivity in the area, these impacts are considered substantial under CEQA.

All of the farmland impacted by the highway projects listed above is either Prime or Statewide Important Farmland. Prime Farmland is land with the best combination of physical and chemical characteristics for the production of crops. Statewide Important Farmland is land with a good combination of physical and chemical characteristics for growing crops. Although there are no state or federal laws which explicitly prohibit conversion of agricultural lands to other uses, the state and federal government, as well as many local jurisdictions, including Imperial County through its General Plan, have established policies indicating the importance of farmland. The intent is to avoid, whenever practical, locating public improvements within agricultural preserves or acquiring high quality agricultural land for transportation improvements.

Mitigation Measures

Mitigation for cumulative farmland impacts will be in the form of the purchase of conservation easements where farmland is protected in perpetuity. The exact amount of farmland to be purchased, and its location will be determined after further consultation with local agencies and the State Department of Conservation. It is expected that a high priority for pursuing conservation easements would be near intersections, as a means of preventing induced growth on prime farmland.

In June 1999, Caltrans held a conference call to discuss with Imperial County and the State Department of Conservation. The Department of Conservation strongly supports the purchase of conservation easements as farmland impact mitigation. The Agricultural Land Stewardship Program was recently renamed the California Farmland Stewardship Program (CFCP). The recent bond acts (12 and 13) have doubled the amount of grant money available for California Farmland Conservancy Program. It may be feasible to transfer project mitigation funds directly into the CFCP with certain conditions and stipulations about expending the funds in Imperial County. The County of Imperial, the Department of Conservation and the Natural Resource Conservation Service could then decide how to best purchase the easements. The purchase farmland could simultaneously provide permanent forage for the Mountain Plover, thereby enhancing biological values in the Imperial Valley. The American Farmland Trust also has offices in California and can acquire and maintain agricultural conservation easements.

The implementation of such a plan for agricultural land preservation in one of the nation's prime agricultural regions would reduce the farmland impact of this project. At this time, FHWA has not agreed to this mitigation as being eligible for federal aid funding, however; discussions are ongoing with the State to determine its acceptability. If not eligible for federal-aid, funding, Caltrans still plans on funding the mitigation from other sources.

Partnering with interested agencies may be possible to facilitate decisions on mitigation details.

- Criteria will be developed to prioritize conservation easement purchases. These criteria should ensure that all participants in the process meet their goals and provide an objective system for evaluating which parcels to purchase as easements.
- Appropriate mitigation ratios and funding would be established.

Visual

The proposed project would incrementally contribute to cumulative changes within the viewshed from rural to semi-urban. This project, and other regional highway projects including SR-78/86, SR-111, SR-7 and SR-98, would implement the cumulative changes. These projects, along with possible highway-oriented development, would result in a change in visual quality and character in this primarily rural agricultural landscape.

4.18 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Implementation of the proposed project under Alternatives 1, 2, and 3 would result in attainment of short-term and long-term transportation and economic objectives at the expense of some long-term farmland, visual, and noise impacts. Transportation improvements are based on State/local comprehensive planning which considers the need for present and future traffic requirements within the context of present and future land use development. The local short-term impacts and use of resources by the proposed project is consistent with the maintenance and enhancement of long-term productivity for the local area, and the State as whole.

The build alternatives would have similar short- and long-term effects. Short-term losses include economic losses experienced by businesses affected by relocation, and construction impacts such as noise, traffic delays or detours.

Short-term benefits include increased jobs and revenue generated during construction.

The project would improve regional and international traffic flow due to the North American Free Trade Agreement. This would have a long-term positive effect on the productivity of the region by improving the movement of goods and services. The reduction in congestion and delay would contribute to improved regional air quality. Traffic congestion, time delays, and safety conditions on local streets would improve by removing conflicts between farm machinery and regional truck traffic. Long-term losses associated with the “build” alternatives include the loss of farmland, obstacles to wildlife movement, permanent visual alteration, and increased noise in the surrounding community.

The No Build Alternative would not offer any of the gains listed above, nor would it have any of the losses. Furthermore, it would not resolve the worsening congestion and traffic conflicts on local streets and highways.

4.19 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Implementation of the proposed action involves a commitment of a range of natural, physical, human, and fiscal resources. Land used in the construction of the proposed facility is considered an irreversible commitment during the time period that the land is used for a highway facility. However, if a greater need arises for use of the land or if the highway facility is no longer needed, the land can be converted to another use. However, it would be extremely expensive, and examples are rare. At present, there is no reason to believe such a conversion would ever occur.

Construction of the proposed project under any of the build alternatives would result in the irreversible loss of approximately up to 185 ha (459 acres) of prime farmland/ farmland of Statewide significance.

The project cost of approximately \$51 to \$67 million would be irretrievably committed. A reduction in accidents and travel time, and improved system operational efficiency would offset this expenditure. The cost to provide and establish replacement plantings and wetland mitigation are included in the project cost estimates. Also committed would be construction materials and supplies and the energy expended for construction operations.

In addition to the costs of construction and right-of-way would be costs for roadway maintenance, including pavement, roadside, litter/ sweeping, signs and markers, electrical and storm maintenance.

The No Build Alternative would not result in any irreversible or irretrievable commitment of resources, but it may foreclose funding. Other transportation projects that compete for available funds may reduce the funds that are currently available. The opportunity to implement the project might not exist in the future if the project is not built while the funding is available.

4.20 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

Build Alternatives

Adverse effects would include those to displaced residents and businesses, visual quality, noise levels, open space/ farmland, biological resources, growth impacts, and temporary construction effects. To the maximum extent possible, mitigation measures are incorporated into the project to minimize impacts. Adverse impacts are anticipated for farmland, wildlife movement, and species of birds (Burrowing Owl, Willow Flycatcher and Yuma Clapper Rail).

No Project Alternative

The No Project Alternative would result in worsening traffic congestion on the local and regional transportation system.